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## Table of Contents

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ORIGINAL ARTICLES—	PAGE.	LEADING ARTICLES—	PAGE.
"The Influence of Ætiological Factors upon the Prognosis and Treatment of Mental Disorders," by R. G. WILLIAMS, M.R.C.S., L.R.C.P. . . . .	771	Stocktaking . . . . .	787
"Surgical Treatment of Prostatic Obstruction," by A. STANLEY ROE, M.B., Ch.B., F.R.C.S., F.R.A.C.S. . . . .	775	<b>CURRENT COMMENT—</b>	
"Toxicity of Melia Azedarach, 'White Cedar,'" by H. R. SEDDON, D.V.Sc. . . . .	778	Trichomonas Vaginitis . . . . .	788
"A Note on the Sensory Characters of the Nipple and Areola," by F. WOOD-JONES AND JOHN B. TURNER . . . . .	778	Hypoglycæmia and the Islands of Langerhans . . . . .	788
"Fractures of the Maxillary Zygomatic Region and Their Treatment," by H. SKIPTON STACY, M.D., Ch.M., F.R.A.C.S. . . . .	779	Income Tax and Income Tax Returns . . . . .	789
"Poisoned Spears of the Australian Aborigines," by JOHN MACPHERSON, M.A., B.Sc., M.B., Ch.M. 780		<b>SPECIAL ARTICLES ON DIAGNOSIS—</b>	
<b>REPORTS OF CASES—</b>		Acute Intracranial Infections . . . . .	789
"Urinary Infection with Trichomonas Vaginalis in the Male," by DAVID B. ROSENTHAL, M.D., B.S. . . . .	782	<b>BRITISH MEDICAL ASSOCIATION NEWS—</b>	
"A Case of Pellagra," by H. H. BULLMORE, M.B., Ch.B., M.R.C.P. . . . .	783	Scientific . . . . .	795
<b>REVIEWS—</b>		<b>CORRESPONDENCE—</b>	
A Text Book of Surgery . . . . .	785	Professional Advertisement . . . . .	797
Deafness . . . . .	785	<b>BOOKS RECEIVED</b> . . . . .	798
A Community Health Scheme . . . . .	785	<b>DIARY FOR THE MONTH</b> . . . . .	798
Cancer . . . . .	786	<b>MEDICAL APPOINTMENTS VACANT, ETC.</b> . . . .	798
		<b>MEDICAL APPOINTMENTS: IMPORTANT NOTICE</b> 798	
		<b>EDITORIAL NOTICES</b> . . . . .	798

### THE INFLUENCE OF ÆTIOLOGICAL FACTORS UPON THE PROGNOSIS AND TREATMENT OF MENTAL DISORDERS.<sup>1</sup>

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EVEN amongst medical men there is a prevalent misconception as to the relationship between mental disorder and insanity: therefore perhaps one might be permitted to make the distinction clear. Insanity is purely a legal condition implying mental disorder of such a type as to make the individual a danger to himself or to others. A man is not insane by reason of the form of his mental disorder, whether psychoses, psychoneuroses or neuroses, but because of the bearing of his actual or potential conduct upon the community. Thus of two patients, each suffering from an equally severe attack of acute mania, one, a poor man, is certified as insane and sent to an institution, while his wealthy fellow is able to retire

to his country house, where, surrounded by nurses and attendants, he can recover without danger to the community and without ever becoming "insane." Another example of the essentially legal nature of the term "insanity" is that of a patient who, though still mentally disordered, can be discharged from an institution as no longer insane, provided the authorities are convinced that there is no danger to the patient or to the community if this course is adopted. It will thus be seen that the problems of alienation which confront the psychiatrist in his treatment of mental disorder are legal, though necessary, intrusions upon his scientific practice of psychiatry.

In this paper I shall attempt to discuss the mentally disordered as they present themselves to the doctor in private houses, at his surgery or in the wards of a general hospital. Emphasis will be laid upon such ætiological factors as influence the prognosis and the treatment of these patients. The doctor must decide whether it is wise to certify the patient as insane, whether treatment in a "border line" hospital is indicated, whether to advise surgical procedures, or whether to order a prolonged holiday or sea trip. It is only by taking trouble to elicit relevant

<sup>1</sup> Read at the Annual Meeting of the Western Australian Branch of the British Medical Association on March 22, 1931.

ætiological factors and correlating them with the symptoms that satisfactory decisions can be reached. No useful purpose is served by sending a demented epileptic or an imbecile to an institution for borderline cases, even when the disorder of conduct manifested may be slight. At the same time patients with acute mania, though violent and troublesome, may, if the other factors are favourable, be successfully treated in such hospitals as "Heathcote." Just as the pædiatrician must treat the mother along with the child, so the psychiatrist has to consider the patient's family, friends and dependants as well as the patient himself. It is easy for an inconsiderate physician to advise a prolonged sea trip which may avail the patient nothing, but which may possibly break up a family and leave the relatives penniless.

In some cases it is impossible for the doctor to make any investigations, the urgency of the symptoms demanding immediate certification. Mostly, however, opportunity offers for a fairly thorough examination, both physical and mental. Sometimes also it is possible to obtain a full and informative history from relatives. For one called upon to deal with such cases three guiding principles may be enunciated: (i) The mental disorder may be attributable to some definite physical cause such as syphilis, gross brain disease *et cetera*. (ii) The mental disorder may be in part and to a varying degree attributable to some organic disease. (iii) The mental disorder may be the result of hereditary, social and environmental factors.

There is reason to believe that a considerable proportion of the mentally disordered belong to groups (i) and (ii). That is to say, that organic lesions are wholly or partly responsible for a considerable proportion of mental disorders. Of the last fifty consecutive autopsies carried out upon the insane at Claremont, twenty-two (44%) revealed organic lesions which could certainly account for the mental symptoms, while twenty (40%) revealed conditions which must have had a marked influence upon the patient's mental condition. It is hoped that a detailed study of these and other autopsies will be prepared by our medical team, Dr. Bentley, Dr. Thompson, Dr. Bury, Dr. Anderson and myself, probably for submission to Congress. The exact onset of the mental disorder, the symptoms and course will be correlated where possible with the conditions found *post mortem*. Time is far too short to permit one to consider this interesting subject tonight, nevertheless, it may be pointed out that there are demonstrable organic factors at fault in a much higher proportion of mental disorders than is generally supposed.

#### The First Group.

Bearing this fact in mind, let us consider some of the organic conditions which are likely to be important ætiological factors in the causation of mental disorders. First, though not the most frequent factor, let us consider syphilis, which is responsible for between 6% and 9% of the psychoses. Mostly syphilis manifests itself as general paralysis of the insane, but even in other forms it is not uncommonly

responsible for mental disorders. At any rate, it is useful to remember that syphilis is a factor which the psychiatrist must detect or eliminate in almost all cases of mental disturbance, no matter how unlike the text-book picture of general paralysis of the insane the symptoms may be. So important is it, that at many clinics, notably at Vienna, it is the routine to examine the cerebro-spinal fluid of all syphilitics under treatment for that condition. For those who show persistently positive Wassermann reactions in the cerebro-spinal fluid, even though no mental symptoms are present, a course of malaria is given. This seems to be a distinctly rational procedure, for malarial treatment for syphilis of the cerebral nervous system is long past the experimental stage.

Many mental disorders owe their origin to gross brain lesions. The term "gross brain lesion" is often liberally interpreted by psychiatrists to include such brain damage as is caused by *encephalitis lethargica*, progressive lenticular degeneration, disseminated sclerosis, Huntingdon's chorea, *et cetera*, as well as the more obvious tumour, traumatic and other softenings. This subject, from the point of view of symptomatology, has been dealt with in a previous communication (it was the subject for discussion last year). It is probable that a number of these cases escape detection, partly because of the overclouding effect of mental symptoms which make detailed physical examination difficult or even impossible, and partly because physical signs may not be apparent until the late stages of the disease when the patient has become a "chronic" and passed from the close medical scrutiny accorded the new patients. This is no theoretical abstraction, for it is perfectly true that mental symptoms may precede by many months the appearance of the first physical signs of cerebral tumour. Some unfortunate sufferers from gross brain lesions are regarded as neurasthenics, malingers and even criminals, until in the last stages of their disease or at their *post mortem* examinations the true case is revealed. A possible lesson to be drawn is that no abnormal neurological sign, even when only slightly abnormal, is insignificant in the mentally deranged. In such a case, even when no definite diagnosis can be made, careful observation is indicated. At Claremont we are all impressed with this standpoint and efforts are being made to devise tests of tracing and other types which may be in some ways more sensitive than those at present in general use. This certainly appears to be a likely field for research.

Last week I saw a patient to illustrate this point. Mr. X., aged thirty-seven years, had a sound heredity. His education was good. He served in a State Department until the commencement of the war. During the war he was blown up three times in one day; he had a severe attack of jaundice and developed, at the end of his service, bilateral otorrhœa. He married and held a responsible position in England for three years before returning to Australia. After six months in the employ of a business firm he had a breakdown described thus. He received an order on the telephone, but on replacing the receiver he had no recollection of the customer's name or of the nature of the order. He was given sick leave. About three years later he was taken to the Perth Hospital, where, he states, he remained unconscious for some time. Dr. Moxon told him that he had had a slight "stroke" and exhibited him at a medical meeting. He then had ptosis (which still persists), diplopia and paræsthesia. His cerebro-spinal fluid was examined and found to be normal. After

recovery he joined another firm which he served for two years. At the end of this time (eight months ago) he was convicted of stealing from the firm and fined £25. He cannot explain his actions; he was in no financial difficulties. Later he commenced hawking sandwiches round city offices until last month when he was convicted of stealing books, a fine of £10 being imposed. As he was rather tremulous and complained of defective memory and loss of sleep, his friends brought him to "Heathcote."

Commenting on the patient, one of his friends states that: "For the last two years he has been getting more and more irresponsible and has become a remarkable liar. He has let his best friends down. He secured £5 from one as a contribution to the funeral expenses of a non-existent son. His wife had complained of her husband's changed character before the thefts were committed. Though previously an adept at figures, he is now hopeless and his accounts are quite childish. He has never been alcoholic in his habits."

It is beyond the scope of the paper to discuss this case from the neurological point of view. Suffice it to say that he presents some abnormal physical signs, that the blood does not react to the Wassermann test, and that further investigations are being carried out.

While gross brain lesions are in our mind we might consider subacute combined degeneration and Addison's (or pernicious) anemia as causes of mental disorder. It is well known that the signs of subacute combined degeneration may precede the onset of Addisonian blood changes by some months. It is less well known that mental symptoms may apparently precede both of these. To discuss the rationale would almost certainly raise very controversial matters.

Uræmia is well known as a cause of mental disturbance, and in most mental hospitals several patients with uræmic psychoses are admitted and die each year. Over and above these cases there are many of the latent uræmia type, the chronic nephritic, depressed, restless and demented. It is possible that impairment of renal function is more prone to cause mental disturbance than is commonly realized. Chronic pyelitis or pyelocystitis, so common amongst parous females, while not a cause of mental disorder, seems to provide an excellent nidus for the growth of any mental abnormality. The depression, debility and general malaise associated with this chronic or subacute condition should not be overlooked, as intensive treatment may produce dramatic cures. It is difficult to dissociate the arterio-renal syndrome (with its thickened meninges and vascular changes) when it occurs in comparatively young and previously active men from many pre-senile forms of dementia of melancholic or involutional type.

Factors which can contribute materially to the occurrence and course of mental disorder are malignant growths, diabetes, aortic disease, cardiac failure, associated, for example, with auricular fibrillation, pulmonary tuberculosis, hyperthyroidism and other endocrine disorders. Sometimes the detection and control of these conditions leads to considerable mental improvement. These diseases are not placed in any special order and the list is by no means exhaustive: it is intended only to emphasize the diversity of the physical conditions which can be important ætiological factors in the causation of mental disorders. We must all have seen those cases in which confusion, depression and restlessness are the predominant mental symptoms, while physically

the patient appears to be ill. There may be no pyrexia and no apparent focus of infection or localizing sign, yet we have regarded these conditions as toxic in origin. Much has been written of the beneficial effects of dental extractions amongst the insane in America and on *a priori* grounds this is what one would expect. Unfortunately, however, both in England and in Australia the results of dental treatment have been disappointing. Personally, I can say that I have seen very few patients improve as a result of the removal of sources of oral sepsis. On the contrary, I have seen a few patients whose mild mental unbalance appears to have been precipitated into an acute psychosis as a result of extensive extractions. Presumably these patients, previously in a delicate balance with their environment, are suddenly faced with the stress of the dental operation, with the post-operative pain and last, but not least, with the trying problem of adapting themselves to an edentulous condition. These added sudden stresses may prove sufficient to break down the mental resistance and to do more than counterbalance the good resulting from the removal of septic foci. Whatever the explanation may be, it is well to realize that as a general rule extensive and radical dental manœuvres are ill-advised unless the patient is protected (mentally "splinted") by being placed in a suitable hospital. Similarly it may be pointed out that when other operations for the removal of septic foci are contemplated, the patient should not be regarded only from the point of view of the operating surgeon, but that exceptional attention should be given to minimizing pre-operative and post-operative mental stresses. In no branch of medicine is cooperation between the various specialists so important as it is in dealing with these toxic mental disturbances. Unfortunately, owing to economic and other factors, the desired cooperation is rarely obtained, many of these patients with toxic psychosis being allowed to deteriorate and to join permanently the ranks of the insane.

#### The Second Group.

As we pass from the primarily organic to the primarily psychical we may consider mental disorders associated with the climacteric. In those of sound mental stock and in good physical health, the climacteric may be weathered with little or no discomfort. But when the mental stock is slightly unstable and when the general physical health is poor, mental symptoms may become pronounced. It is of very material importance, when dealing with these patients, to detect any debilitating physical condition such as pyelitis, hæmorrhoids, *et cetera*, for both the prognosis and the treatment of the mental disorder are dependent upon these factors.

#### The Third Group.

Before considering the third group, that is, the mental disorders resulting from hereditary, social and environmental factors, mention should be made of the epilepsies. Epilepsy, no longer regarded as a single clinical entity, is a common cause of mental disorder, and although some of the epilepsies are clearly not hereditary, the common so-called



idiopathic epilepsy is definitely dependent upon hereditary factors. Kinnier Wilson and other neurologists are inclined to minimize the importance of the hereditary factors in epilepsy. In quoting recent figures from an American hospital, Kinnier Wilson<sup>(1)</sup> states that of 161 children born of 144 epileptic mothers, only three were epileptic. He quotes these figures to show that in epilepsy heredity is overrated. Let us consider the figures in greater detail. Of the 161 children, seventy-eight died under one year, five were imbecile, three criminal, four psychopathic, two psychotic and three epileptic. That is to say, that only sixty-six of the 161 (about 40%) of the children were apparently normal. How many of the sixty-six would be normal at the age of thirty? No more convincing figures could be produced to illustrate the importance of the hereditary factor in idiopathic epilepsy.

In just the same way that certain neurologists have attempted to underrate the importance of heredity in epilepsy so some psychiatrists have attempted to minimize the influence of the same factors in mental disorders. I have heard a leading psychiatrist say that paying attention to heredity involves the adoption of a pessimistic attitude towards mental disorders. On the other hand, to disregard the importance of heredity is surely to adopt an ostrich-like attitude with the head well buried in the sand.

Anyone inclined to doubt the importance of heredity in the causation of mental disorder would have his views profoundly altered if, for two or three afternoons, he interviewed the patient's relatives at a mental hospital.

At first sight it may appear that I am labouring a purely theoretical point, but that is not so, because both the prognosis and the treatment of any patient are markedly influenced by the family history. Thus, of two patients presenting similar symptoms of mild mental disorder, the history of insane relatives in one might lead to a bad prognosis while a good prognosis might be indicated for the other.

One aspect of this question has rather a theoretical bearing, that is the eugenic aspect, involving as it does the problem of the sterilization of the unfit. Mostly discussed by those least competent to express opinions—women's religious organizations *et cetera*—the subject is almost beyond the range of a British Medical Association meeting. Suffice it to warn the unwary medical man from arriving at hurried and ill-considered opinions on this vexed subject.

When it appears that a case of mental disorder is entirely due to other than physical causes, it is necessary to estimate, on the one hand, the patient's mental stock, and, on the other, the severity of the stresses to which he has been subjected. It is as a result of an estimate of these factors that one can give a prognosis and direct treatment. Some of the stresses are almost purely sociological and are therefore, in favourable circumstances, open to adjustment, while others commonly encountered are repressed complexes involving the principal instincts—self-preservation, propagation and the herd instinct. In the good old days of the family practitioner when the doctor had probably ushered

the patient into the world, bribed him with lollies, chastised him for stealing fruit from the orchard and later observed him in the whirl of local social life, no elaborate examination was necessary: the doctor could read his patient like the *Daily Sketch*. Nowadays such a long standing relation between doctor and patient rarely obtains. Nevertheless, it is usually possible for the doctor to acquire the patient's confidence and then by common-sense methods to elicit some important repression, such as the repression of sex owing to the dictates of herd. Personally, I am not convinced that much more useful information is obtained by psychoanalysis, dream interpretation *et cetera* than by more conservative methods. This does not imply that no special skill is required of the psychiatrist. The skilled pædiatrician, in a momentary glance at a child's throat, is able to observe all the important points, whilst one less expert, though using the same technique, derives little information from a troublesome and prolonged examination. Similarly, a medical man who is accustomed to dealing with the mentally disordered, can ascertain abnormalities which another, though adopting the same methods, would miss. Here is an example of dream interpretation quoted from Dr. E. Graham Howe.<sup>(2)</sup>

The patient, a woman of forty-seven, wore horn-rimmed spectacles, a severe expression, a masculine type of dress, and was the head mistress of a large girls' school. She had entered and passed with honours every examination within her power, and, judged from one standpoint, her life could be measured as successful. As a child her parents had told her that they were bitterly disappointed that she was not a boy, and her whole life had been directed towards making up for this unfortunate defect on her part. Up to a point she had succeeded and she had been able to contribute from very small beginnings to her parents' comfort in their old age. But she was subject to extreme fits of depression and she was afraid of going out for walks by herself in lonely places, or if it was dark, in case she should be attacked by a man. It was for this depression and anxiety that she came for treatment.

I do not suppose that there is one here who has not diagnosed the condition and formulated, as far as possible, the lines of treatment. Did not Gilbert describe such a one in Iolanthe's Fairy Queen? But let us probe her dream.

I was on top of a high hill with some other people and I was told that we had to go down and cross the river that lay between the base of the hill and some rugged barren ground on the other side. I did not wish to go and wanted to stay on the hill. I told the others if they went there would be an awful disaster, but in spite of my warning they went down the hill and commenced to cross the river. They had only got halfway across when suddenly there was a terrible storm with wind and rain and they seemed to be washed away. Then I found myself going down the hill and I knew that I also had to cross the river, but somehow I did not feel afraid because in my hand I held a talisman. It was circular like a little box, and I seemed to touch it with my forefinger and then touch my face. With this talisman I was able to cross the river without danger.

Dr. Howe sums the dream up thus:

She found some little difficulty in evaluating her talisman until she was asked to make the gesture that she had to make in the dream. There was no doubt about it and she had discovered its meaning for herself. The talisman was a powder box and puff, symbols of femininity which she had always affected to despise.

It is my opinion that the psychiatrist, using only such skill as he is accustomed to use in his dealings



with patients, can detect the essential fault in these cases. He can then suggest appropriate sublimation, physical transference or such other mechanism for the solution of the conflict as he thinks fit. By psychoanalysis and the bringing into consciousness of a mass of sex conceptions, which properly belong to the limbo of the unconscious, the individual, though possibly rid of his symptoms, is doomed to go through life viewing every lamp-post as a phallic symbol and thinking principally between the knees and the umbilicus.

I must ask pardon for this outburst because our State appears to be singularly free from this obnoxious form of medical practice. There appears to be a definite swing away from the purely psychical methods in favour of an increased cooperation between psychiatry and the other branches of medical science. This process is indicated by the helpful articles which are contributed from time to time by Dr. W. S. Dawson and Dr. R. S. Ellery.

In conclusion, I should like to make a general statement, for which, however, no statistical evidence can be offered. It is that as a result of advances in our knowledge of psychiatry, the prospects of any individual patient with mental disorder are now appreciably better than they were ten years ago. Moreover, the extent of the improvement is at least equal to that which has been obtained in the other branches of medicine and surgery.

#### References.

- (1) Kinnier Wilson: "Some Aspects of the Problems of the Epilepsies," *The British Medical Journal*, October 26, 1929, page 745.
- (2) E. Graham Howe: "Motives and Mechanisms of the Mind," *The Lancet*, January 17, 1931, page 147.

#### SURGICAL TREATMENT OF PROSTATIC OBSTRUCTION.<sup>1</sup>

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THE surgery of prostatic obstruction falls into three main headings, if I exclude, of course, the obstructions due to cord lesions. These three headings are median bar, adenoma and malignant disease, and these are what I shall concern myself with tonight.

In all cases of prostatic obstruction a discussion revolves, first, around the preliminary preparation for operation and, secondly, around the operation for the removal of the obstruction itself. I believe the preliminary preparation to be the more important, for if all things are favourable for operation, the operation itself is a comparatively simple matter.

Verne Hunt, in an article discussing poor results of prostatectomy at the Mayo Clinic, claims that in the main they were due to pyelonephritis.

All surgeons admit that prostatectomy should not be attempted till the renal function is adequate, so that one can readily see how important this aspect of the discussion must be. I will consequently first devote myself to the actual surgical procedure for the different types of obstruction and then, as I consider it the more important, enlarge upon the preliminary preparation for such.

#### Median Bar Obstruction.

The symptoms of median bar obstruction are practically identical with those due to adenoma. It occurs, however, more commonly in younger people, forty to sixty years of age, though I have had one case in the eighties. Rectal examination gives no indication of enlargement of the prostate, and cystoscopy shows no lateral lobes, but a very definite inflammatory bar, or glandular bar, not infrequently complicated by the presence of a renal calculus. In my experience the presence of lateral lobes, as seen by the cystoscope, is an absolute indication that a punch operation should not be done, but that enucleation should be carried out.

There are many types of punch operation practised. I have done three methods myself, namely, the ordinary Young's punch, the Young punch followed by diathermy to the bleeding surface, and, thirdly, the fulguration punch, as invented by Walker, of London.

I have discarded the first two methods and now stick to the third, in spite of the published criticisms against it. In my mind, with the Young's punch removal of adequate tissue is difficult and bleeding is very often troublesome. Controlling the bleeding with diathermy is difficult, but satisfactory as a rule, but again the removal of tissue is often inadequate.

The removal of tissue by the fulguration punch is much easier, as the obstruction shrivels when fulgurated and a certain amount of sloughing goes on afterwards. Very little bleeding takes place, though a little occurs when the slough separates, generally about ten to fourteen days. The relief of obstruction is excellent and has been permanent in every case save one, and in this instance the patient developed malignant changes after eighteen months. The objection is on the score of inflammatory reaction, and this can be very severe. At first I was inclined to think this risk was overrated, but then I have had a few cases that show me it is a very real one, and that certain precautions must be closely observed.

In one instance, the worst, there was a history of acute prostatitis six months previously, though at the time of operation there were no acute local signs. The patient was all right for twenty-four hours, but developed retention. I passed a soft catheter at once, but in the next twenty-four hours he developed rigors, which got worse, so after another twenty-four hours I put a suprapubic drainage tube into his bladder. He smelt like a case of gangrene, but responded quite quickly, and eventually made a very fair recovery.

One must avoid burning too severely, as this certainly increases the inflammatory reaction, and

<sup>1</sup> Read at a meeting of the Queensland Branch of the British Medical Association on May 10, 1931.

to achieve this one is guided partly by experience, partly by the feel of heat in one's finger which is in the rectum, and mainly by one's vision through the telescope of the instrument. If severe reaction does take place, put in a suprapubic catheter without delay.

#### Obstruction Due to Adenoma.

Obstruction due to adenoma is diagnosed by its symptoms, the age of the patient, most commonly sixty years upwards, and the enlargement as felt *per rectum* and confirmed, if necessary, by cystoscopy. The operation for removal that is almost inevitably carried out is the suprapubic enucleation. When the kidney function is considered adequate, I proceed as follows: If a suprapubic catheter has been used I simply enlarge the wound sufficiently to introduce two fingers and enucleate the gland as quickly as possible, using a finger in the rectum if I think it will help me. I then pass a catheter through the urethra and fasten it to a glass drainage tube which I place in the suprapubic wound. "Hæmostatic serum" is given and no attempt is made to check the bleeding, except by the insertion of a swab in the prostatic cavity while the catheter and tube are being got ready.

In favourable cases the operation takes only a few minutes and it is wonderful how little shock is then met with, even in frail old men.

The glass tube is taken out in four days and the catheter in from seven to eleven days, according to the inflammation present. The bladder is washed out suprapubically as long as there is room to pass a small catheter, and if the wound is not healed in three weeks cystoscopy is done. This will show any obstruction present, such as tags, nodules or ledge, and anything seen can be destroyed by fulguration, after which healing as a rule occurs quickly. In this operation and in the open operation to be described, each vas is tied as a routine. This most efficiently prevents any orchitis taking place—any infection that may occur will not extend down below the seat of ligature.

When the kidney function has become adequately restored by means of a catheter tied in the urethra, an open operation is the operation of choice. Thomson Walker first devised the operation, and his type of operation, with some modification or other, is carried out nowadays by most urologists. Dr. Harry Harris has gone still further and is now doing an open operation, with repair of the prostatic urethra and complete closure of the bladder. I personally attempt an operation between these two methods. Through a transverse skin incision which need not be very long, except in fat people, the fascia is divided vertically and the bladder quickly opened as near the fundus as possible. The prostate is then shelled out digitally; a finger in the rectum is seldom necessary. A swab is then packed into the prostatic pouch and the patient put up into the Trendelenburg position. A bladder retractor, such as that of Thomson Walker, is then inserted, and a very fair view can be obtained of the prostatic pouch

by means of an ordinary Asiatic overhead light. Any tags or nodules of prostate can then be removed and any artery spurting can generally be seen and picked up. A good sucker is of great help, if available. If one views the prostatic pouch from above and considers the bladder opening as a triangle, the base of which is towards the ureters and the apex towards the symphysis, sutures should be put in at each basal angle and a continuous one along the base is often of great help. Too much time should not be wasted on oozing from the walls of the pouch, but a large catheter should be passed and fastened to a piece of tube on the abdominal wall, just so that the eye of the catheter should be in the bladder; an extra eye should be made in the catheter so as to drain the prostatic pouch from its most dependent part. The bladder is then sewn firmly round a large self-retaining catheter, which is brought out through a stab wound just above the transverse skin incision; a small piece of rubber glove is used to drain the prevesical space for thirty-six hours. Very weak antiseptic is used to irrigate through the catheter every hour for the first twenty-four hours to diminish the risk of clotting. The suprapubic tube is taken out in four days, the urethral catheter in seven to eleven, according to the irritation caused. Urine is usually passed easily after eleven days with this type of operation.

#### Obstruction Due to Malignant Disease.

Obstruction due to malignant disease is generally one of two types: first, the ordinary adenoma that has undergone malignant changes, and secondly a hard, irregular, slightly enlarged prostate, whose every feature suggests malignancy and which defies any attempt at enucleation.

The former type is often discovered only after removal, either by its recurrence or by the microscope, and it is then very difficult to know what decision is the best to make about it. If suspected during the operation by the impossibility to shell part of the gland after having enucleated most of it, I have several times severed the adherent part by means of a fulguration cautery and this, too, with good results. This can be done quickly only during a one-stage open operation. The hard nodular type can be attacked only by the use of radium, and I am in no position to give any lasting results with it. Three patients with severe obstruction of this type that Dr. Clarke and I have treated with radium have all healed up suprapubically and have urinated, but they have been too recent to be sure of any permanency in the result.

#### The Preparation of the Patient.

Whatever type of operation is performed, the principles concerning the preparation of the patient for operation are exactly the same. In fact, the whole thing becomes a matter of renal function and infection.

Renal function and infection make the operation necessary, determine what type of preliminary treatment shall be carried out, decide on the type

of operation, and are responsible for the good, bad or indifferent results of the operation.

When confronted by a case of prostatic obstruction, one's procedure is generally along the following lines.

The residual urine is estimated and the renal function is observed.

Many tests are spoken of, but most surgeons learn to depend on one or two and stick to them. The indigo-carmin test is the one I value most as an estimate of surgical risk, but I invariably study the patient's general condition and have the blood or salivary urea and urea concentration tests done. In young people with obstruction of the median bar type, if the renal tests are satisfactory and there is little or no residual urine, the fulguration punch operation can be done with ordinary preoperative surgical treatment. If the results of the tests are bad and in all adenomatous or malignant cases a catheter is tied in and the bladder drained. It is almost always possible to pass a modern firm catheter with a Coudé tip; if there is over about 180 cubic centimetres (six ounces) of residual urine it is advisable to let it out gradually—about 120 cubic centimetres (four ounces) every two hours, at the same time giving the patient diuretic treatment. If a catheter cannot be passed, the bladder should be tapped suprapubically with a long, fine spinal needle and the needle then withdrawn. This can be repeated if necessary.

If the patient obviously needs a two-stage operation, a suprapubic tube should be inserted after a few days, under a local anaesthetic for preference; otherwise change the catheter every two or three days, irrigating three or four times daily with a weak antiseptic solution, such as one in 4,000 mercuric oxycyanide solution. After ten to fourteen days, if the results of renal tests are adequate and things are satisfactory, proceed to the open operation. If the results of tests are not adequate, leave another week and repeat. If inadequate then, some surgeons go on even longer, but Thomson Walker says if the results of tests are not adequate in three weeks, suprapubic drainage should be carried out.

Now tying a catheter in continuously is not a trivial thing, especially in a man with prostatic trouble, and I think I had better relate some of my horrible experiences in this line.

During the past twelve months I had a patient with apparently uninfected urine, aged between sixty and seventy years. He had had a gastro-jejunostomy operation done on him and his urine was only dribbling, due to an adenoma. I tied a catheter in, and on the fourth day he had a violent hæmorrhage and collapsed. He staggered round, but about the twelfth day he had a rise in temperature with rigors. I put in a tube suprapubically under local anaesthesia and he certainly rallied and left hospital to convalesce, but eventually developed pneumonia and died.

Now if I had put a tube in his bladder straight off, he might have had his hæmorrhage, but I do not believe he would have died.

Again, just the other day I had a man in the sixties with complete obstruction. I tied a catheter in, and after three weeks' draining the results of his renal tests

were good. I was a little uneasy about him, as three days previous to my making the tests he had an evening rise of temperature up to 37.8° C. (100° F.). However, his chart had since been normal, his tongue was moist and reasonably clean, he felt well and was eating his food. I decided to do an open operation. Everything went all right, and he was well during the night. His urine was blood stained only, but he had a severe rigor next morning and died within twenty-four hours in spite of everything we could do.

A definite percentage of patients treated with an indwelling catheter fail to develop adequate renal function and have to have a suprapubic drain inserted; a definite number develop infection and also have to be drained suprapubically; the majority, however, tolerate the catheter and develop their adequate renal function in the first few weeks and are then excellent cases for operation. All surgeons admit, however, that the suprapubic drainage is the more efficient method of restoring renal function, and a few surgeons claim that it should be used invariably. Quite a number keep their patients draining suprapubically after operation and do not like the wound to close up under three weeks. That suprapubic drainage is miraculous in recovering men apparently hopeless is illustrated by such a case as the following.

A man, aged seventy, had almost complete retention of over three months' standing, severe pyuria and frequency and probably a distension overflow for most of that time. His general condition was bad, his tongue was dry and coated, he was very thirsty, he had no appetite and his mentality was very dulled. A suprapubic drainage tube was inserted under local anaesthesia and routine treatment was instituted. While lying in bed he developed a low grade bilateral pneumonia with blood-stained sputum *et cetera*. He made a slow recovery, eventually left hospital with his drainage tube still in. About six months later the results of his renal tests were good enough to justify enucleation. He took his anaesthetic well (ether by the open method with morphine and atropine), the gland was shelled out in a few minutes and he made an uneventful recovery, leaving hospital in about four weeks. His suprapubic wound leaked a little about a month later, and there was a developing ventral hernia to be seen, so I gave him another anaesthetic, carried out cystoscopy, destroyed a ledge that was present, cut out his suprapubic scar and sewed it up firmly. The wound healed up rapidly and has now a perfect result.

This certainly sounds like a lot of "messing about," but the end result certainly justifies the means, as the old man is well and happy. It is over two years since his operation and he looks good for another ten at least.

From an operative point of view this case represents the type in which the most operative interference had to be done, but the result is a very good physiological one. Other cases could be mentioned showing good functional results, but they would be very similar to the one mentioned. I should, however, like to allude to one case with especial reference to the effect on his blood pressure.

In this instance the patient complained of a general deterioration in his general health and a great difficulty in emptying his bladder. The urine simply dripped out and there was a tumour above the pubis. His systolic blood pressure was over 220 millimetres of mercury and his diastolic pressure 110 millimetres. Suprapubic drainage was carried out again and after ten weeks the gland was enucleated without any trouble. The wound healed up and the patient passed urine in three weeks, the systolic



blood pressure being then down to 130 and the diastolic to 100 millimetres of mercury. After a couple of days he had a rise in temperature and had a flare-up in each cord down to the site of ligature.

The suprapubic tube was put back, everything settled down and the bladder was drained for another three weeks. His systolic blood pressure was then 150 and his diastolic pressure 90 millimetres of mercury, and the wound was allowed to heal. His case is a recent one, so I cannot give any follow-up history, but he looks and feels well, and the drop in his blood pressure is very suggestive.

In conclusion one must admit the open operation of one or other type should be the aim in every case possible, but I personally believe that all men over eighty would have a safer operation and a better expectation of life if suprapubic drainage were instituted first. So also would all patients with acute inflammation, either renal or prostatic; in other cases the decision must be made according to the indications.

#### TOXICITY OF MELIA AZEDARACH, "WHITE CEDAR."

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SINCE my return to Australia an article by Dr. John MacPherson, of Sydney, in your issue of September 13, 1930, has come under my notice, and as the article in question leaves the toxicity of the drupes (berries) of the above tree somewhat in doubt, the following information is tendered.

During the years 1891-1898 several articles appeared in the *Agricultural Gazette* with reference to the supposed toxicity of these berries for poultry and pigs.

In 1920 some pigs died at Forbes, and as the stomachs of these animals contained berries of the above tree came definitely under suspicion, and Mr. Whitehouse, Government Veterinary Surgeon, undertook a test at Hawkesbury Agricultural College. He found that pigs would not take the berries voluntarily, but that a mixture of crushed berries and swill was readily eaten. Symptoms of illness developed in this pig a few hours later and the animal died six hours after feeding.

The above experiment was not published, and the only references seen in literature are: (a) Pammel ("Manual of Poisonous Plants," 1911), wherein it is stated that the berries are said to be poisonous and that they contain mangrovin; (b) White (*Queensland Agricultural Journal*, 1920, page 146), wherein it is stated that the berries are poisonous to pigs; (c) Herbert ("Poison Plants of Western Australia"), who states that they are poisonous to pigs but that birds are immune.

To confirm Whitehouse's work, some tests were undertaken at this Station in 1927, when their toxicity for pigs was confirmed. Sheep receiving as much as one and a half pounds of pulped berries were not poisoned, though slight symptoms of illness were manifested.

More recently it was found that as little as 4.8 ounces of ripe berries were toxic for a pig of forty-four pounds weight. Our previous test was with green berries, half a pound proving toxic.

A recent supply of "berries" was examined by Miss Holdsworth, of Mr. H. Finnemore's laboratory (Pharmacy Department of the University of Sydney), for the late Poison Plants Committee of the Council for Scientific and Industrial Research, and as a result alkaloids were found to be present.

Investigations have recently been conducted by Steyn at the Onderstepoort Veterinary Laboratories in South Africa, and these show that the most toxic part of the tree is the ripe drupe, the flowers, green drupe and bark being less toxic. Of the drupe the only part which is toxic is the soft yellowish epicarp, the exocarp and endocarp being harmless. Steyn finds the drupe toxic for pigs and sheep, less so for fowls, muscovy ducks and the goat. An attempt made to poison dogs failed, as they vomited the material. Steyn finds further that the toxin is thermostable and that it is soluble in alcohol, ether and chloroform.

So far as I am aware, the leaves have not been used by veterinarians in Australia for the treatment of gastrophilus (bot) infestation for which other remedies involving the use of recognized drugs are employed.

As to the danger to man, no definite opinion is expressed, but the fact that the so-called berries are highly toxic for at least one type of animal possessed of a single compartment stomach would I should think be significant, and Mr. Maiden's record of the poisoning of a school-child is in keeping with our knowledge as cited above.

#### A NOTE ON THE SENSORY CHARACTERS OF THE NIPPLE AND AREOLA.

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It is a strange fact that when John Hunter enumerated those sensory tactile areas that were "more capable of giving with nicety the superficial structure of bodies than any of the others,"<sup>(1)</sup> he elected, as his third example, the *glans penis*. From the work of von Frey and of Head,<sup>(2)</sup> we now know that the discrimination of the superficial structure of bodies brought into contact with it is a sensory activity quite outside the functional rôle of the *glans penis*.

Among the older anatomists it was usual to draw a close parallel between the sensory characteristics of the *glans* and of the nipple. Both parts were described as being "of an extremely quick sense."<sup>(3)</sup> In writing of the nipple, Thomas Gibson says: "It is of an exquisite sense, and resembles something the *glans* of a man's penis."<sup>(4)</sup> When we come to test this exquisite sense of the nipple we encounter the same strange condition as is familiar in the case of the *glans*, for the nipple and the areola are typically incapable of feeling the light sensory stimulus produced by cotton-wool or testing-hairs.

It is likely that this fact is familiar to clinicians and that it has already been adequately dealt with in the literature, but so far our search for any published account of the sensory qualities of the

nipple area has been unavailing. We recognize that this failure to be acquainted with any previous work on the subject may result rather from our comparative literary isolation than from the real absence of such work.

In every way the quality of sensation within the areolar area is typically protopathic or thalamic in its character. The appreciation of the stimulus of cotton-wool or testing-hairs ceases abruptly at the margin of the specialized, pigmented areolar area. With the prick of a needle the characteristic protopathic reactions are obtained, and with this interesting extension that, as the intensity of the pain stimulus is increased, all stimuli, even if directed to the periphery of the areolar area, are referred to the nipple itself, while stimuli on the surrounding breast are referred to the areola. To heat and cold stimuli the reactions of the area are, again, typically protopathic and a very considerable delay is necessary for the appreciation of the stimulus.

The appreciation of separated compass-points cannot be tested, since a separation equal to the maximum diameter of the areola cannot be detected with certainty anywhere on the mammary area. The recognition of the nature and texture of substances brought into contact with the nipple and areola is at a remarkably low ebb. It is very remarkable that a rough piece of glass paper (Oakey's number 2) drawn somewhat heavily across the nipple has been diagnosed by women as "something soft and smooth."

On squeezing the nipple between the finger and thumb the milder degrees of pressure are interpreted as contact, and, on continuing the pressure, pain is somewhat sudden and "unpleasant" in its onset. It is of interest to note that, coincident with this sudden release of unpleasant feeling, there is a well marked dilatation of the pupils. Dilatation of the pupil consequent upon stimulation of the nipple has been previously reported by Osborne.<sup>(5)</sup>

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- (2) Sir Henry Head: *Brain*, 1908, page 389.
- (3) Lawrence Heister: "Compendium of Anatomy," 1752, page 153.
- (4) Thomas Gibson: "Anatomy of Human Bodies," Third Edition, 1688, page 234.
- (5) W. A. Osborne: "Australasian Association for the Advancement of Science," Volume XVIII, 1926, Presidential Address, Section N, page 837.

#### FRACTURES OF THE MAXILLARY ZYGOMATIC REGION AND THEIR TREATMENT.

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#### Anatomy.

In dealing with the maxillary zygomatic region it is well to refresh our knowledge of the new terminology, otherwise the older generation of practitioner will be confused. The main alteration is in that what we knew as the malar bone is now

called the zygomatic; placed to the lateral side of the orbital cavity, it forms the sharp lateral border of that hollow; below it rests upon and is united to the maxilla (old terminology, superior maxilla); behind it enters into the formation of the zygomatic arch, which bridges across the temporal fossa. This arch consists of the temporal process of the zygomatic bone and the zygomatic process of the temporal. This latter process has two roots, an anterior and a posterior, between and below which are placed the mandibular fossa in front and the external acoustic (old terminology, auditory) meatus behind.

The infraorbital nerve is the terminal branch of the maxillary nerve which enters the orbit through the inferior orbital fissure and traverses the infraorbital canal to reach the face. In the infraorbital canal the infraorbital nerve supplies one and sometimes two branches to the teeth; these reach the alveolar arch in bony canals and supply the incisor, canine and premolar teeth.

After emerging on the face from the infraorbital foramen the main nerve divides into a number of radiating branches arranged in three sets: (a) for the lower eyelid, (b) for the skin of the side of the nose, (c) for the cheek and upper lip.

We will now proceed to deal with fractures of this region.

#### Ætiology.

The ætiology is varied; direct violence of some kind is practically always responsible; either a kick at football, blow with the fist *et cetera*. Latterly aeroplane crashes are contributing their quota.

#### Signs and Symptoms.

The lesion may form part of multiple injuries and escape observation for some days. They are nearly always depressed fractures, so that we rely upon visible deformity and signs of pressure upon the infraorbital nerve. The deformity is often obscured by swelling of the soft tissues, but even then in many cases, by running the finger along the orbital margin and comparing it with the other side, they may be detected. Nerve pressure is indicated by numbness of the gum, half the upper lip, the face below the infraorbital margin and the side of the nose; soreness of the anterior teeth on the affected side is sometimes complained of; the lip feels very thick on that side. There may be failure of proper coaptation of the lower and upper teeth. There is often ecchymosis of the eyelids, sometimes subconjunctival.

Tenderness at the site of the fracture is often a guide.

In one case in which the fracture involved the zygomatic arch towards the temporal end, there was difficulty in opening the mouth and depressing the lower jaw.

#### X Ray Evidence.

X ray evidence is uncertain; in many cases a normal report is given, where subsequent operative procedure has shown a fracture. Careful comparison of the outline of the zygomatic bone with that of the other side will sometimes reveal a lesion. Interpretation in the maxillary region is notoriously difficult, as anywhere about the base of the skull.

### Treatment.

I have seen between twenty and thirty of these fractures and I have invariably treated them by making a small incision below the lower eyelid down to the orbital margin. I have then laid the handle of an osteotome (wrapped round with lint) over the frontal region near the outer canthus of the eye. Using this as a fulcrum I insert a periosteal (skull) elevator, preferably roughened towards the end on one side, and with as long a handle as possible, into the wound. The fulcrum is held firm and by lever action the depressed bone is raised. The lever may slip once or twice before success is attained; the bone will be felt and heard to move.

The wound is closed with a mattress stitch of horsehair, catgut or iodized silk and covered with compound tincture of benzoin. The contour of the face will in practically every case be restored immediately. This, of course, is done under a general anæsthetic; as the operation is only a matter of a few minutes the anæsthetist may give ether and then stand aside; no intranasal, intrapharyngeal, or intralaryngeal methods are needed.

As with all fractures early reduction is wise; it is then easier, but it is quite feasible even five or seven days later, possibly longer, but I have no experience of long-delayed operations. Early reduction is the keynote to the treatment of all fractures.

When the fracture is along the zygomatic arch, of course the incision is made in that position; the tender spot should previously have been marked out with skin ink or silver nitrate solution. The difficulty in opening the jaw will disappear immediately the fracture is raised.

Some medical men are inclined to think that a dental specialist is the most fitted to tackle those cases when the teeth fail to appose, unmindful of the fact that the procedure I have outlined not only raises the depression but apposes the teeth at the same time. It has the merit (or is it demerit these days?) of being simple, whereas intraoral manipulation and the application of a dental splint exposes the patient to more risk of post-operative pulmonary complications (partly because of the length of time occupied). This is no mere fanciful objection.

### After-Treatment.

Little after-treatment is needed. Mouth washes may be occasionally used. The numbness is usually improved next morning and as a rule has gone in several weeks; as a rule it goes quicker when the depression has been lifted earlier. The patients are allowed to go home in about five days. In some cases it has been impossible to detect the scar subsequently.

There is an occasional complication that should be mentioned. In most cases probably the maxillary sinus (old terminology, antrum of Highmore) is filled with blood clot; as a rule this absorbs and gives no trouble; occasionally it becomes infected from the nose, especially if the patient has a cold. In these cases the assistance of an ear, nose and throat surgeon is sought; he generally proceeds to

irrigate the antrum through its communication with the nasal cavity *viâ* the middle meatus. The inflammatory symptoms then soon subside.

### POISONED SPEARS OF THE AUSTRALIAN ABORIGINES.

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THE Australian native blacks employed many species of the vegetable kingdom as poisons to stupefy fish and even emus and so facilitate their capture. Singularly little use, however, was made of plant poisons for their spears in warfare. Some time ago a writer (H. J. M.) in the *Sydney Bulletin* mentioned that the Cunjeboi (*Colocasia macrorrhiza* Schott) was used by the aborigines to poison their spear-heads. This plant grows along the coastal areas of Queensland and New South Wales, and is known also as the Creek Lily. Its active principle is a very powerful and acrid irritant poison, but is extremely volatile and so would be suitable only for immediate use. The Cunjeboi belongs to the family Araceæ.

### The Milky Mangrove.

Many members of the great family Euphorbiaceæ possess a dangerous acrid, milky sap, and some African native tribes employ the poisonous juice of species of Euphorbia or Spurge to poison their spears. In Australia, according to the late Charles Hedley, of the Australian Museum, the aborigines of Port Curtis, in Queensland, used to poison their spears with the milky juice of the milky mangrove (*Excæcaria agallocha* Linné) belonging also to the Euphorbiaceæ. This tree is known also as "The River Poisonous Tree" or "Blind your Eyes." In Fiji it is "Sinu Gaga," and in Norfolk Island, "Sapota." Its range extends from northern New South Wales, Queensland and Northern Australia through the East Indies to tropical Asia, including India. It is a small tree with fig-like leaves and light soft wood. It occurs abundantly in mangrove swamps and near salt rivers. On incising the bark of the trunk, there exudes an abundance of acrid, dangerous milky juice, which is so volatile that, in spite of the greatest care, it would be impossible to collect even a quarter of a pint without being affected. Its reputation is so sinister that it has been stated that even one drop falling upon the eye will destroy the sight. In India the natives are afraid to cut the branches for fear of the sap (called "tiger's milk") causing blistering of the skin or blindness if it should come in contact with the eye. Some sailors sent ashore at Amboyna in the Moluccas to cut timber became furiously maddened from the intense pain produced by the juice falling on their eyes. Some lost their sight. Woodcutters where it grows have reported inflammation and ulceration of the skin from the juice scattered by the strokes of the axe. Other symptoms are an acrid, burning sensation in the throat and severe headache. The juice is also a powerful purgative. For industrial purposes a good india-rubber or caoutchouc may be



prepared from the milk. The native tribes of Eastern Australia and New Guinea employ the poisonous juice in the treatment of chronic ulcers and leprosy. In Fiji the leper is fumigated with the smoke of the burning wood. The patient, bound hand and foot, is suspended in a hut and literally smoked alive over a fire of this wood. The acrid fumes cause exfoliation of the surface lesions, and could be merely palliative. If the sufferer survived the treatment, it is stated that he had a new lease of life. In India the juice applied to inveterate ulcers produces marked benefit. The leaves in the form of a decoction are also used similarly as an application for such ulcers.

*Excocaria Dallachiana* Baillon has been regarded by some as a variety of the foregoing species. Its Australian habitat is New South Wales and central and south-eastern Queensland. It is a small tree growing in the drier scrubs and is reputed to have caused mortality among stock. When the bark is cut, there exudes a white viscid, very poisonous juice in great abundance. One tree may yield a gallon in a few minutes. This sap is so virulent when fresh that even the aborigines will not touch it. It has all the properties of gutta-percha or india-rubber, and the tree is often so called. It contains 19.61% of caoutchouc, soluble in naphtha; 6% of albuminoids, insoluble in water; 5.5% of alcohol and tannin as well as other constituents. It yields also a useful timber. It might be noted here that Para rubber is furnished by *Hevea brasiliensis* Muller and other species belonging to the Euphorbiaceæ.

A third species is *Excocaria parvifolia* F. von Mueller, the gutta-percha tree of the Gulf of Carpentaria and Jil-leer of the Cloncurry aborigines. This tree is found along the Mitchell and other rivers in north-west Queensland and Northern Australia. It grows to a height of twenty feet and yields a useful timber and gutta-percha. It is full of an acrid milky juice. On cutting a stick of the tree the sap is prone to get on the hands, causing inflammation, or on the eyes, inducing much pain and temporary blindness. This blindness, however, is only of short duration and no after-effects are to be apprehended. The native blacks made medicinal use of the bark mashed up in water in a wooden kooliman (or bowl) and heated with stones from an adjacent fire. This was applied as a lotion to all parts of the body, rubbed well in. It was used for various infirmities, especially if attended with pain. The tree bears small leaves in clusters and grows especially in areas subject to floods.

*Clerodendron inerme* Gaertner of the family Verbenaceæ is a plant extending from New South Wales to Northern Australia and New Guinea. This plant is used by the natives of New Guinea to heal spear wounds.

#### Poisoned Spears in New South Wales.

Over thirty years ago I was in practice at Glen Innes, in northern New South Wales. I there came closely in contact with the remnants of the aboriginal tribes and was informed by them that, in the olden days, poisoned spears were considerably in use. The men covered them with the melted resin of the

grass tree (*Xanthorrhœa*). They were then passed on to the women, who alone knew the secret of impregnating them with the powerful poison. A wound from such a spear was generally fatal, unless treated by a female. Men were powerless to cope with such cases. Ordinary spear wounds were treated by sucking. An Inverell lubra informed me that, in her tribe (Yookumbul), spears were poisoned by a substance obtained from the mountains. An old man of the Ngarrabul tribe (Glen Innes and the adjoining country) was in great dread of poison (mittee). He said that the Inverell blacks obtained it originally from Queensland and kept it in a small vessel. It was like a scent and was in use almost up to the time of my residence there. Great secrecy attended it and even the police were unable to trace it. If the possessor were at enmity with anyone, his victim's fate was sealed. During his absence from camp the poison was sprinkled on his rug and when he slept he died "all puffed out." During my residence in the Glen Innes district current rumour ascribed the death of some aborigines to a mysterious poison employed by hostile natives. There can be no question that, in earlier days, the aborigines were in terror of being poisoned to death by hostile blacks in revenge.

Mrs. J. S. Litchfield, writing of North Australia, states that she never heard of the blacks using designedly poisoned spears, but that some spears were made of red mangrove wood, which, of itself, possessed poisonous properties, the least scratch from such wood being liable to become an ugly festering wound. This species is *Bruguiera Rheedii* Blume of the family Rhizophoraceæ.

#### Neilyeri or the Poison Revenge.

Leaving the vegetable kingdom, we find other methods of making spear wounds more lethal. The Reverend George Taplin describes the poison revenge or Neilyeri of the Narrinyeri tribe of the Lower Murray and Lakes Albert and Alexandrina, in South Australia. Writing in 1873, he states that the custom was introduced about sixteen years previously from the Upper Murray and was exceedingly deadly, causing great mortality. The native using this method, took either a spear-head, a piece of bone (often human) or a piece of iron, which he sharpened to a fine point and cut to a convenient length, generally about six or eight inches. This was then inserted into the fleshy part of a putrid corpse and kept there for some weeks. The heathen black then took a bunch of spun hair or feathers and soaked it in the fat of a corpse, extracted for the purpose. In this bunch he wrapped the point of the short dagger-like Neilyeri and used it as a very deadly poisoned weapon. Stealing upon his enemy while the latter slept, if he but pricked him once with the Neilyeri, he inoculated him with virulent organisms and doomed him to "horrible agonies and probably death." Doubtless a severe septicæmia or "blood poisoning" ensued. The old natives were well acquainted with the virulent nature of the fluids of a corpse and possibly their strenuous objection to earth burial was in order to retain this method of revenge in their hands. Neilyeri

was not the invention of the Narrinyeri, but the old natives used it to maintain their reign of terror, as their ordinary sorceries were being sceptically received with the advance of civilization. The Neilyeri inspired dreadful terror; even the mere pointing of it occasioned fright and downright illness. No other poison was known to the Narrinyeri; they were amazed to learn that death could be produced by something taken into the stomach.

Dr. Herbert Basedow observes that the Australian aborigines do not poison their spears in the ordinary sense of the word. However, the Ponga Ponga and Wogait tribes of Northern Australia sometimes employ a method resembling that of the Narrinyeri. They take the vertebrae of a large fish, like the Barramundi, and insert them into decaying flesh, generally the putrid carcass of a kangaroo. Subsequently they are tied to the head of a fighting spear. The spear thus becomes far more deadly, and the stricken enemy more quickly succumbs. The practice, however, is not general, and the spear never leaves the hands of the owner.

In my younger days I frequently heard tales of the blacks poisoning their spear points by digging them into ground infected with tetanus organisms, as occurs in other parts of the world. I have never been able to authenticate such an assertion by any reference in the literature. There is nothing in Australia comparable to Curara, *Strophanthus Kombé* or Upas (*Antiaris toxicaria*)—the deadly arrow poisons of South America, Africa and Java.

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#### Reports of Cases.

##### URINARY INFECTION WITH TRICHOMONAS VAGINALIS IN THE MALE.

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RECENT contributions to this journal dealing with infection of the female genital tract by the flagellate, *Trichomonas vaginalis*, have directed attention to this organism and reopened the undecided argument as to its pathogenicity. A search of the literature fails to reveal the report of the occurrence in Australia of a case of urinary infection in the male with this parasite. For these reasons it is considered that the case here recorded is of sufficient interest to warrant publication.

Since the discovery by Donné in 1837 of the flagellate, *Trichomonas vaginalis*, there has been much discussion of this parasite and its habits. Its characters are well known: Typically pear-shaped, it occurs in a variety of forms,

and may be pyriform, spheroidal or amœboid. In size it varies from 15  $\mu$  to 25  $\mu$  in length and from 10  $\mu$  to 15  $\mu$  in breadth. It has a definite undulating membrane and four flagellæ, and is actively motile. Its life history has never been fully elucidated. Does it multiply by fission, or is there some kind of sexual reproduction? Does it form spores? It has been found in the mouth, the male urethra and in urine, but is generally found in the vaginal secretion, usually in the presence of vaginitis, when the exudate is acid in reaction.

Brumpt in 1913 found the parasite present in 10% of women examined in a clinic in Paris; other observers report its presence in up to 30% to 40% of their patients.

The mode of transmission from infected to non-infected persons is incompletely known, and the method of infection in women unknown. Although causing a condition resembling and frequently associated with gonorrhœa, the organism has been found in virgins, and it is possible that faecal contamination may be responsible in some cases. Infection of the male is assumed to be by coitus, and the infected male may then transmit infection to another female. The relation the parasite bears to disease is also undecided. Conflicting views have been expressed as to the pathogenicity of the organism, which has been isolated from swabs taken from a normal vagina.<sup>(1) (2) (3)</sup>

Generally considered non-pathogenic, it is usually associated with and aggravates a coincident inflammatory condition of the affected part. It is of interest that the treatment of vaginitis, with which *Trichomonas vaginalis* is associated, based on the biochemical reactions of that organism, alleviates the condition and may result in cure.

Visher<sup>(4)</sup> reports a case of acute pyelitis in a female patient in which the organism was isolated from urine obtained by the cystoscope from the bladder, although urine obtained from the kidneys by ureteric catheterization showed no parasites. There was associated vaginitis and cervicitis, with *Trichomonas vaginalis* abundantly in the secretions. Apparently the organism was responsible for cystitis (at least) and infection was probably by direct spread from the vagina.

#### Clinical History.

A male patient, a widower, aged seventy-two years, had a past history which was irrelevant. He had not ventured out of temperate regions. On August 26, 1930, he was subjected to laparotomy for the operative treatment of cholelithiasis. It was found that the gall bladder contained a single large calculus and there was one small stone in the common bile duct. These were removed and the gall bladder was drained. For a few days after operation progress was uneventful and there was a free drainage of bile from the drainage tube. Drainage continued for some weeks after the tube had been removed, the fluid being bile-stained and purulent.

During this period his general condition was good, and on September 28, 1930, the patient was allowed to sit out of bed. The following evening his temperature rose to 38.2° C. (100.8° F.) and there was complaint of abdominal pain and vomiting; free drainage from the wound continued. For the next few days his general condition became worse, with pain in the right hypochondrium, vomiting and obstinate constipation. The temperature had dropped to normal, micturition was painful, with suprapubic pain and scanty urine. On October 4, 1930, the condition was unaltered and examination of the urine showed the following features. The reaction was acid. Albumin was present in large quantity. Microscopical examination revealed crystals of calcium oxalate, many pus cells and red blood cells, much epithelial debris, mainly of bladder origin, many motile bacilli and motile parasites, about 14  $\mu$  to 24  $\mu$  in diameter, ovoid in shape, with spine at one end carrying three to four rapidly moving flagellæ and an active undulating membrane. These organisms conformed in every detail to the flagellate, *Trichomonas vaginalis*.

Rectal examination revealed a moderate degree of enlargement of the prostate gland, but there was no tenderness.

The patient was given a mixture containing 3.6 grammes (sixty grains) of potassium citrate every four hours, with free fluids. Within twenty-four hours his condition

was obviously much better; he volunteered feeling improved and asked for solid food, which had been refused for several days. Jaundice was obvious at this stage and persisted for about four days.

On October 8, 1930, improvement had been maintained; there was no vomiting or abdominal pain; drainage from the wound had ceased and the temperature was normal. On October 11, 1930, urine examination revealed the following characters. The reaction to litmus was amphoteric; many pus cells and motile bacilli were present; a few granular casts, but no flagellates were seen.

In order to render the urine alkaline in reaction, the dose of potassium citrate was increased to eight grammes (120 grains) every four hours. From this period progress was rapid and permanent, the wound healed rapidly. The appetite was good. The quantity of urine passed daily varied from 1,500 to 3,000 cubic centimetres (50 to 100 fluid ounces).

On October 13, 1930, the urine was slightly alkaline in reaction; casts were present in increased quantity, and in one, slightly granular, a degenerate form of *Trichomonas* was seen. A few flagellates were seen, mainly ovoid and non-motile. Although a small number had slowly moving flagellae, the majority were obviously degenerate forms. The dose of potassium citrate was increased to eight grammes (120 grains) every two hours during the day and every four hours at night.

On October 15, 1930, a urethral smear, obtained by prostatic massage, was examined for parasites, without result. Examination of a smear, obtained by swabbing the throat, failed to reveal any organisms. Examination of the urine revealed a slightly alkaline reaction. A few pus cells, many red blood cells and many motile bacilli were present and a few degenerate non-motile forms of parasite were seen.

On October 18, 1930, in spite of the above medication, the urine was only faintly alkaline in reaction, and a mixture containing two grammes (30 grains) of sodium bicarbonate in 10% solution of glucose was given every four hours.

On October 19, 1930, for the first time the urine gave a strongly alkaline reaction to litmus; degenerate forms of the parasite were present in small number. These were absent from a specimen examined the following day.

On October 21, 1930, with the object of acidifying the urine, a mixture containing 2.4 grammes (40 grains) of sodium acid phosphate was administered thrice daily, the previous mixtures being discontinued.

On October 25, 1930, the urine was slightly acid in reaction. A few pus cells and red blood cells were observed; no forms of *Trichomonas* were seen.

On November 1, 1930, the urine was unchanged in character and content. The patient was discharged the following day, symptomless and in very good general state.

Subsequent efforts to trace this man for further examination and observation have been unsuccessful.

#### Comment.

The source of infection by the flagellate is obscure. The age of the patient, his relative isolation and personal habits, render it exceedingly probable that the infective parasite had been present in the lower urinary tract and lying dormant for years. Urinary symptoms failed to manifest themselves until five weeks after the abdominal operation. Was the parasite in this case pathogenic? The writer is of the opinion that the condition was one of pyelitis and cystitis due to infection by *Bacillus coli communis*, and the occurrence of the flagellate was coincidental.

The line of treatment adopted should have been efficacious in an infection of the urinary tract with either organism, together or separately. An interesting feature is the disappearance of the parasite from the urine when it was rendered alkaline and its failure to reappear on acidification, although, from the presumed length of period of its residence in the host, one might have expected it to be more resistant to variation of environment. The detection of a renal cast containing a flagellate form draws attention to the possibility of the organism ascending to the renal tissue itself.

#### Acknowledgement.

I wish to thank Miss E. Williams, of the Walter and Eliza Hall Institute for Pathological Research, Melbourne Hospital, for her assistance in identifying the organism and for her advice during the investigation of the case.

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- <sup>1</sup> C. M. Wenyon: "Protozoology," Volume I, 1926, page 658.
- <sup>2</sup> Charles F. Craig: "A Manual of the Parasitic Protozoa of Man," 1926.
- <sup>3</sup> H. Carl Davis and Charlotte Calwell: "Infections with *Trichomonas Vaginalis*," *Journal of the American Medical Association*, Volume XCII, 1929, page 306.
- <sup>4</sup> John W. Visser: "A Case of Renal Infection with *Trichomonas Vaginalis*," *ibidem*, page 2098.

#### A CASE OF PELLAGRA.

By H. H. BULLMORE, M.B., Ch.B., M.R.C.P. (Edin.),  
Honorary Physician, Saint Vincent's Hospital,  
Sydney.

It is well to draw attention to a deficiency disease at this time of stress amongst so many of our population.

The subject of this report is a healthy looking girl of twelve years of age, with a slightly flushed but clean skin on the face, at present. She was born in England and for the last four years has lived in Australia.

I have had some difficulty in probing her past history and symptoms on account of the fact that the child's intellect is not bright, and it is rather difficult to get a connected history from the mother. Apparently the child lived with her mother (after the latter had been left to fend for herself two years ago) for a few weeks. The Welfare Society then handed her over to a home, from which place she ran away three times in as many weeks. Apparently the Police Department has since interested itself in the child's welfare. In June, 1930, she was with a younger sister placed in an orphanage, where she remained until the middle of January of this year.

According to the mother's account, the child had to be protected from the sun in England, as she became "sunburnt" very easily. The only other item in the early history of interest was that as an infant she suffered from "inflammation of the bowels" and that, as her first teeth came through, they had to be extracted on account of abscesses at their roots.

It is significant that the patient was brought to Saint Vincent's Hospital "because she had great pain and seemed to lose all power in her right side, as if she had paralysis." Since the patient has been in hospital she has occasionally complained of pain in the right thigh radiating to the ankle. On admission to hospital the patient's skin manifestations were those of a typical text book description of pellagra. The hands and forearms were of a lilac colour, the skin dry and much thickened, with a sooty discoloration of the thickened epithelium on the dorsal surface between the fingers. The upper arms were scaling in rather large flakes. The elbows were covered with a rusty coloured keratosis, as were the knees. A collar of black keratosis, sharply defined by the margin of a low necked dress, surrounded the neck behind and the chest in front. The keratosis faded gradually into a thickened, pigmented skin ending at the hair margin. The face was reddened, as if from sunburn, with a sooty appearance at the hair margin. Upon the lower legs were scattered, here and there, sharply defined, pigmented scars 18 millimetres (three-quarters of an inch) in diameter. The legs were scaling from the knees to the lower third. Bilateral symmetrical keratosis of the ankles and feet completed a most striking picture of the condition, the thickened skin being quite sooty black in colour.

The patient suffered many scrubbings with a nailbrush and soap at the hands of her mother in an endeavour to remove the pigmented skin, to no avail. Such was the patient's objective condition on admission.





FIGURE I.  
Showing side of neck of patient with pellagra.

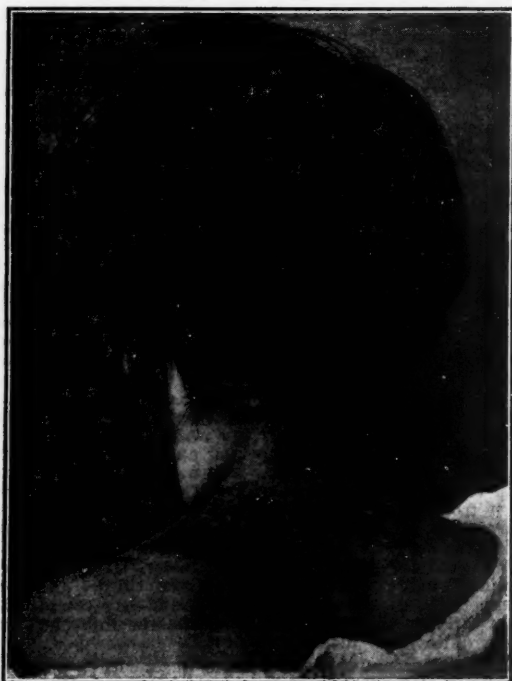


FIGURE II.  
Showing back of neck and shoulder of patient with pellagra.

There is a vague history of some alimentary disturbance, but little weight can be attached to this.

Apparently the first manifestation of her condition occurred early in November, when her face became red and "sunburnt"; a similar redness on the neck became scaly. The hands at the same time were very "raw looking." Red patches occurred on the legs which formed blisters and then sores; the legs became scaly, then the black skin appeared.

While the child was in the orphanage, the diet consisted of bread and dripping for breakfast, meat, cabbage and potatoes and rice or custard for dinner, and at 5 p.m. bread and butter or bread and jam and tea with all meals.



FIGURE III.  
Showing legs of patient with pellagra.

The younger sister was affected to a less degree with the same condition of the skin as her sister. From inquiries at the orphanage I understand that there are no similar cases.

The patient's skin is becoming normal remarkably quickly since she has been in hospital, the treatment consisting of a diet of meat, eggs, green vegetables, as much milk as she will take and yeast.

The photographs here published were taken two weeks after the patient's admission and, although they show the condition of the skin when it had considerably abated, still give a clear conception of a typical picture of the skin conditions seen in pellagra.

## Reviews.

### A TEXT BOOK OF SURGERY.

"A MANUAL OF SURGERY," by Stewart and Lee, is a well planned one volume text book.<sup>1</sup> The book is modern and is a monument to the care, patience and industry of the authors. To compress a useful treatise on surgery into one manageable volume of 1,200 odd pages is a difficult task and we admire the result of the authors' effort.

It is impossible to prescribe what space the various aspects of disease should occupy in a well compounded and well balanced volume, yet this is one of the most important considerations in the production of such a book as this. We feel that our authors have sometimes failed to preserve a true balance. It should not be necessary, after stating a general principle of diagnosis, to give a long list of all the examples in surgery which illustrate it, especially when it is done at the expense of the space which could be more properly devoted to treatment.

This volume is divided into thirty-one chapters. Chapters I to V are taken up with general considerations, namely, diagnosis, anaesthesia, disinfection, surgical technique and bandaging. Chapters VI to XIII are devoted to the consideration of surgical pathology. General surgery considered according to the systems of the body occupy the remaining eighteen chapters of the book.

There is a definite lack in some of the paragraphs on treatment; we can imagine a lonely man, facing an emergency without a colleague's sustaining wisdom, feeling but little less desolate after reading some of them.

Sometimes the essential point of a specially designed operative procedure is missed in the description, as, for instance, in the account of Macewen's internal osteotomy for knock-knee. The importance of the small incision in skin and periosteum, the cutting of the bone in the right place, and the careful avoidance of any other injury to the periosteum than the first small incision are insufficiently emphasized.

In the treatment of burns only the treatment by "tanning" is mentioned. The method of thorough disinfection and paraffin coating deserves mention, as it makes a very satisfactory scar, a very important consideration in many cases.

In the chapter on facial deformities the authors scarcely mention the methods of the ever-increasing number of surgeons who attack the problems of hare-lip and cleft palate in the first few weeks of life, thereby securing a practically sterile field and the more ductile tissues of early infancy for their manipulations.

The suggestion that a tooth which has had an apical abscess may be treated and left in the patient's mouth without prejudice to that patient's health will be bitterly contested by many, and the statement that bilharziasis is the cause of black-water fever is definitely wrong. The bilharzia is a bladder parasite and causes hæmaturia. Black-water fever is a hæmoglobinuria closely associated with malaria, though not definitely proved to be a result of it. The illustrations are good and clear, and in our opinion too few. There are many printer's errors in this volume requiring correction in future reprints or editions.

The faults found with this book are mostly of minor importance. The book will be useful to those whose surgical knowledge is built on a solid foundation.

### DEAFNESS.

DR. V. NESFIELD has written a book on deafness and its alleviation.<sup>2</sup> In the early chapters he describes elementary

anatomy and physiology, with theories of middle ear function and the mechanism of deafness. Enlarged tonsils and adenoids are stressed as a cause of catarrh and otitis media, but the nasal sinuses are entirely overlooked.

In a brief description of tonsillectomy rather discarded views are expressed in advocating the guillotine as safer and more bloodless than dissection in the adult, and a view that incomplete tonsillectomy often meets the requirements equally as well as total enucleation appears to be based on an assumption that tonsil enlargement is the main reason for operation. Diathermy receives no mention, a heated probe or cautery being considered effective. The author's operation for ventilation of the middle ear by a modified mastoidectomy is described; it is claimed to be a safe procedure and more effective than Eustachian catheterization. The mastoid antrum is exposed and the posterior meatal wall removed nearly to the annulus, a large fistula into the external meatus being left. Subsequent loosening of adhesions and opening of the Eustachian tube is claimed, so that Valsalva blowing can be carried out. From three months to a year may pass before benefit is noticed and reeducation and occasional incision of a membrane which closes the fistula are advised.

A series of cases is quoted with encouraging results; we should have preferred a full tabulation of every case, however, with details of recognized clinical tests carried out before and after operation. There have been no serious consequences nor damage to hearing, while hope is offered for even adult deaf mutes by the author with this procedure.

Altogether the work lacks scientific presentation and cannot be accepted without further detail. At the same time Dr. Nesfield is to be congratulated on his enthusiasm and energy.

### A COMMUNITY HEALTH SCHEME.

As has been repeatedly proclaimed, particularly since the war, there exists in all centres of population an enormous proportion of unfit, and the expense incurred, directly and indirectly, in the effort to sustain them is a severe drain on the resources of the community. That the remedies emanating from the eugenists are mostly unacceptable, if not fantastic, while the palavers and pargories of the politician and the philanthropist, though they may quiet the bowels of the compassionate, tend in the end to aggravate the evil, is the essence of the preliminary argument of "The Case for Action," by Dr. Innes H. Pearse and Dr. G. Scott Williamson.<sup>3</sup>

While there exist many organizations for social betterment and to give aid in cases of distress or sickness among the artisan class, they are all founded and maintained by philanthropic or religious bodies and their medical activities, if any, are subsidiary. This small book is an account of the inception, working and outcome of a medical-social centre tentatively founded on a health basis. Initiated by "a small company of private individuals" and known as the Pioneer Health Centre, it occupied a small house in the middle of a densely populated district. A resident medical officer, a social secretary and a housekeeper were installed, and families living in the neighbourhood were invited to join a "family club." In return for a small weekly subscription per family they were offered a periodic medical and dental overhaul for each individual, a parents' clinic served by man and woman doctors, antenatal, postnatal and infant welfare clinics, an orthopaedic clinic and a children's nursery. On joining, each individual was given a searching medical examination and records were kept for future reference, statistical and research purposes. An annual review of each member's state of health was obligatory. No treatment was given; where this was required members were advised where to obtain it. Examinations were made at

<sup>1</sup> "A Manual of Surgery for Students and Graduates," by F. T. Stewart, M.D., and W. E. Lee, M.D.: Sixth Edition; 1931. Philadelphia: P. Blakiston's Son and Company. Royal 8vo., pp. 1320, with 787 illustrations. Price: \$10.00.

<sup>2</sup> "Deafness and its Alleviation by Operation," by V. Nesfield, F.R.C.S.; Second Edition, 1931. London: H. K. Lewis and Company Limited. Demy 8vo., pp. 177, with illustrations. Price: 10s. 6d. net.

<sup>3</sup> "The Case for Action, a Survey of Everyday Life Under Modern Industrial Conditions, with Special Reference to the Question of Health," by I. H. Pearse, M.D., B.S., and G. S. Williamson, M.C., M.D.; 1931. London: Faber and Faber Limited. Crown 8vo., pp. 183. Price: 5s. net.

times to suit working hours and domestic arrangements. With the development of the social side of the club full advantage was taken of the psychological and other opportunities which presented themselves. As the father came under the influence of the club his sense of responsibility was stimulated and his importance as a parent and partner with the mother suggested to him. The problems connected with pregnancy, birth control, infancy and childhood all come under consideration in the account of the work of the centre, and the authors' views can be warmly commended to everyone interested in social welfare and health. Finally, the adolescent came to the centre with his needs and problems, but at this point the limitations of the scheme as then existing became apparent. Something bigger was needed if boys and girls of seventeen to nineteen were to be included, yet without them the family as a unit would be incomplete. It was decided to close the experiment and review the position in the light of the experience gained. The conclusions arrived at are given in summary. Though it may be said that these do not embody any new ideas, they have not before been set down in the same form. The outcome was the decision to proceed on the lines indicated on a large scale. In the concluding chapter of the book a detailed description is given of the building to be erected and the scope of activities of the new health centre.

"The Case for Action" is extremely well presented and it is important that the book should be widely read. It is the more unfortunate, therefore, that it contains statements which cannot be accepted. No statistics will persuade a biologist that "the racial characteristics of foreign parents living in America were lost and the typical American physiognomy (including actual skull formation) acquired in one generation." That "over one million children in Great Britain are too unfit to take advantage of the education offered them by the State" is surely untrue. While the claim that "owing to the provision of a periodic overhaul disease was discovered and brought to treatment perhaps, on an average, six to ten years before in the ordinary course of events it would have reached a doctor's consulting room" is not scientifically expressed.

The scheme is recommended to the reader in prefaces by Lord Moynihan and the Master of Balliol.

## CANCER.

"SOME ASPECTS OF THE CANCER PROBLEM," by Professor W. Blair Bell, is mainly devoted to an exposition of the work of the Liverpool School of Cancer Research, and is well worthy of careful study.<sup>1</sup> Professor Bell is to be congratulated on having been able to associate with himself an influential group of lay patrons of research on the one hand and of scientific colleagues on the other. The scientific workers, of whom he is the leader, are essentially independent and free, but they have worked in effective cooperation, producing what he designates as an "aggregate mind."

The book is full of evidence of the best form of scientific imagination, probably resulting from the association of men with highly diverse trainings and outlooks. The result is that the subject is tackled from innumerable points of view in a very suggestive and helpful way. It is eminently readable and but for the fact that it is occasionally disfigured slightly by the rather caustic handling of critics, it is an altogether delightful book.

The standards of safety that are laid down for the lead emulsions are not by any means easily applicable. When

the killing power in rabbits is used as a standard, it must be admitted that difficulties present themselves. Efforts have been made in Australia to get consistent results in respect of the minimum lethal dose with groups of rabbits inoculated at the same time with the same emulsion of colloidal lead, but the results have been disappointing. What can only be called individual idiosyncrasy has come in to such an extent that it is extremely difficult to determine what is a minimum lethal dose. This experience in rabbits has apparently been more or less paralleled in man, for Blair Bell tells us, on page 329 of his volume, that there is a great difference in individual tolerance to lead. Some patients showed signs of poisoning after quite small amounts had been administered, whilst others showed no untoward symptoms, although relatively large quantities had been given. This makes the standardization of lead an extremely difficult process. Other tests, such as the effect of lead on the circulation and respiration of the cat, and the abortion-producing effect on the pregnant rabbit, are difficult to apply, and their use on a more extended series of animals is very desirable before their values can be assessed.

A great amount of attention is paid in the book to the work of Warburg, and a discussion of the results of his work in its bearing on the views and work of the Liverpool school is of great interest.

Attention is largely devoted to cancer as a process, not so much to the cause of the condition. Owing to the analogy that the author insists exists between chorionic epithelium and malignant tissues, a considerable amount of work was done on the pH of the maternal and fetal blood and organs and of malignant tissues. Whatever the value of this work may be in enlightening the cancer problem, it is of undoubted value from many other points of view, especially from the point of view of the toxæmias of pregnancy.

The effect of occupation on the incidence of cancer and the statistical public health aspects of the disease are discussed.

A very interesting section deals with the relative infrequency of the occurrence of cancer in workers suffering from occupational lead poisoning.

In dealing with the infrequency of cancer of the cervix in nulliparous women and its frequency in parous women, it is stated that there is good reason to believe that cancer of this region has supervened on a precancerous condition produced by infection or trauma. This does not seem an entirely adequate handling of the subject. For example, the irritating action of certain contraceptives might be reasonably supposed to be much more pronounced in parous than in nulliparous women, but the author apparently does not consider this possibility.

The changes occurring in the serum of cancerous patients are dealt with in a very informative manner and merit the further attention of research workers.

A description of the innumerable preparations of lead that have been tested by the Liverpool cancer research authorities and others is worth perusal by any who propose to take up the subject.

A selection is given of the different classes of patients that were treated by lead, and one cannot read the account of recoveries without feeling that a large amount of very careful, patient and reliable work has been rewarded not infrequently by definite success. The quantities of lead given to those patients who recovered have usually been very large, and it seems doubtful whether any large series of patients has been adequately treated in Australia by this method. The profound anemia developing when perhaps less than two hundred milligrammes of lead have been given in the course of a month or so, has made the worker rather nervous about continuing the treatment. The admissions in the book of lead poisoning, sometimes with relatively small doses, are also disquieting.

One cannot close the book without feelings of admiration for Professor Blair Bell for a stupendous effort carried to some success with infinite patience and devotion. Nobody who proposes to treat cancer by lead can afford to be without the book.

<sup>1</sup>"Some Aspects of the Cancer Problem: An Account of Researches into the Nature and Control of Malignant Disease Commenced in the University of Liverpool in 1905 and Continued by the Liverpool Medical Research Organisation (Formerly the Liverpool Cancer Committee), Together with Some of the Scientific Papers that Have Been Published," edited by W. Blair Bell, B.S., M.D., F.R.C.S., Hon. F.A.C.S.; 1930. London: Baillière, Tindall and Cox. Imperial 8vo., pp. 557, with illustrations. Price: 63s. net.



## The Medical Journal of Australia

SATURDAY, JUNE 27, 1931.

*All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.*

*References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: Initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.*

*Authors who are not accustomed to preparing drawings or photographic prints for reproduction, are invited to seek the advice of the Editor.*

### STOCKTAKING.

THE last day of June marks the end of the financial year for most business undertakings; it marks the end of the financial year for individual members of the community. Income tax assessment forms have to be sought, income must be computed, and incidentally every allowable deduction ascertained. The law is responsible for these mathematical exercises. Individuals doubtless find the process irksome and the aftermath unpleasant. Since man has to provide for his present needs and the needs of those dependent on him, and since he wishes to look ahead for the proverbial rainy day of incapacity or of old age, the annual investigation is not without its advantages. Business houses find that the yearly stocktaking is essential. The outgoings have to be ascertained. The stock in hand must be checked and valued. The cash takings are set against the expenditure. The auditor has to exercise his mystic rights before he sets his seal on the computations of the firm's accountant. Provision must be made for the future and depreciation must be considered before a dividend can be declared. At the present time the air is dark with "depression" and heavy with forebodings. At no

time has stocktaking been more necessary—stocktaking in its widest sense, the estimation of reserves in money (or of the amount standing on the debit side), the discovery of means of extending activities and the provision of work and an adequate wage for employees.

But this is a parable. Medical practitioners assuredly work to gain a livelihood for themselves and their families. Many are finding it particularly difficult to "balance the budget"; some cannot strike a balance. The other side must not be forgotten. Stocktaking must include a searching into the reserves of knowledge and wisdom and the qualities of heart and mind. It were a platitude to make the statement that financial success does not spell acquisition of knowledge, that possession of knowledge does not denote accumulation of wisdom and that wisdom does not of itself bring the qualities of heart and mind that are essential to happiness. Even so, the platitude must stand. In his mental stocktaking, in drawing up his profit and loss account, a medical practitioner has to consider his income and expenditure—his income in knowledge of disease, his use of that knowledge to build up reserves of wisdom and his expenditure in the application of knowledge and wisdom to relieve human suffering and add to the common storehouse of medical science. No business man can sell what he does not possess without being guilty of fraud; no medical practitioner can give honest help if he is without knowledge, wisdom and understanding. If he be in the latter unhappy state, his profit and loss account will be a sorry spectacle. In this each man must be his own auditor, and he must, above all, be honest with himself—falsification of books will bring an inevitable and heavy penalty.

Knowledge does not come without hard work. Osler said that, "given the sacred hunger and proper preliminary training, the student-practitioner requires at least three things with which to stimulate and maintain his education, a note book, a library, and a quinquennial braindusting." Thus will knowledge be acquired. But knowledge is not wisdom; knowledge is its forbear. Wisdom is born of knowledge after nurture in the mind. Wisdom is knowledge brought to fruition. Osler expressed

it well when he said: "What we call sense or wisdom is knowledge, ready for use, made effective, and bears the same relation to knowledge itself that bread does to wheat." Here he quoted Cowper in lines which might have been written for medical practitioners:

Knowledge and wisdom, far from being one,  
Have oft-times no connexion. Knowledge dwells  
In heads replete with thoughts of other men;  
Wisdom in minds attentive to their own.  
Knowledge is proud that he has learned so much;  
Wisdom is humble that he knows no more.

When wisdom is associated with a sound philosophy of life, the best results are possible. Knowledge, wisdom and understanding may be attained by everyone. In proportion as they are brought into everyday use will the profit side bulk largely in the balance sheet.

### Current Comment.

#### TRICHOMONAS VAGINITIS.

RECENTLY there have appeared several letters in this journal concerning the occurrence of *Trichomonas vaginalis* in vaginal discharge. There seemed to be no doubt in the minds of the writers that this species of trichomonas is a pathogenic organism and that trichomonas vaginitis is a definite entity. In this issue there appears a report of infection in a small patient. Since the *Trichomonas vaginalis* was discovered by Donne in 1837, numerous other species have been described. *Trichomonas buccalis* and *Trichomonas hominis* occur in man. There is no obvious morphological difference between these two and there are only minor differences between either of them and *Trichomonas vaginalis*. Wenyon suggests that the three trichomonads of man may really belong to one species and that any alteration in structure is due to variation in nutrition. Several observers have noted that the three organisms appear to be identical when cultured in an artificial medium. There appears to be no evidence that *Trichomonas hominis* is the cause of any disorder of the bowel or mouth, and most authorities are of the opinion that, though it may often be found in acid vaginal discharge, *Trichomonas vaginalis* is a harmless commensal and any inflammatory trouble which may be present is due to some other organism.

P. Brooke Bland, Leopold Goldstein and David H. Wenrich have recently made an investigation of the incidence of *Trichomonas vaginalis* in the vaginal discharge of pregnant women in the antenatal clinic of the Jefferson Medical College Hospital.<sup>1</sup> Three hundred patients were examined, with the result that *Trichomonas vaginalis* was found in sixty-one

instances. There is, however, a discrepancy between this figure and the figures given later. One hundred and sixty-four of the women were coloured and they accounted for fifty-four of the cases, as against thirteen of the remaining 136 white patients. Bland, Goldstein and Wenrich regard the relative frequency among the coloured women to be due to inattention to the hygiene of the parts. Only eight of the patients who harboured the *Trichomonas vaginalis* complained of any local symptoms, but many of the others, when especially questioned, "mentioned the existence of a profuse, irritating or burning yellow or white discharge." In almost every instance in which the organism was found, the vaginal discharge was thick, yellow and often foaming and contained numerous bacteria and leucocytes. There was evidence (the investigators do not say in how many instances) of vaginitis and vulvitis; acute gonococcal vaginitis was sometimes simulated, save that the discharge was frothy. Bland, Goldstein and Wenrich believe that under certain favourable conditions *Trichomonas vaginalis* may become pathogenic and may give rise to local and ascending inflammation, particularly during the puerperium. For treatment they advise first of all scrupulous and thorough mechanical cleansing by means of scrubbing with green soap, followed by washing with sterile water, then a solution of cresol; the vagina is then dried and a tampon saturated with a 10% solution of boracic acid in glycerine is inserted and allowed to remain overnight. The anal region should be kept thoroughly clean. They remark that vigorous and repeated treatment is usually necessary.

If, as Wenyon suggests, *Trichomonas hominis* and *Trichomonas vaginalis* are the same organism, it is probable that infection is carried to the vagina from the anal region. The fact that *Trichomonas hominis* is apparently non-pathogenic in the bowel is, of course, no proof that it is not pathogenic in the vagina. There are many organisms, perfectly harmless while in their normal habitat—the bowel—which produce serious effects when transferred to other parts of the body. A method of treatment referred to by Dr. Brian Swift in his letter which appeared in this journal on April 25, 1931, is that of inserting pills of "Yatren 105" into the vagina. "Yatren 105" undoubtedly has an amœbicidal action and probably it is also lethal to other protozoa; if its use without any additional treatment suffice to clear up a vaginitis associated with the presence of *Trichomonas vaginalis*, such results may be taken as further proof that this organism is the cause of a definite pathological process.

#### HYPOGLYCAEMIA AND THE ISLANDS OF LANGERHANS.

IN September, 1928, and March, 1929, reference was made in these pages to certain tumours of the pancreas which were accompanied by hypoglycaemia. The islands of Langerhans in these pancreases were

<sup>1</sup> American Journal of Obstetrics and Gynecology, March, 1931.

hypertrophied. In one instance the change was frankly malignant; in another it was difficult to determine whether malignant change of a low grade was present or not; in yet another it was thought that the change might be simple hypertrophy. In a recent report of a somewhat similar case A. W. Phillips points out that the most interesting forms of hypoglycæmia are those resulting from definite pathological changes.<sup>1</sup> These changes fall into three aetiological categories: hepatic, endocrinal and pancreatic. Hypoglycæmia of hepatic origin is due to disturbance either in the sugar mobilization or in the storage functions of the liver; these dysfunctions are apparently caused by certain forms of hepatic disease. In regard to the endocrine system, the fact that suprarenal and pituitary extracts will raise the blood sugar and are therefore used to abort hypoglycæmic attacks, suggests that the suprarenal and pituitary glands may be a causal factor in the lowering of the blood sugar. The case reported by Phillips belongs to the third category mentioned by him—that of pancreatic change. The patient, a negro man, fifty-six years of age, suffered from hypoglycæmia, but died of subacute glomerular nephritis. The islands of Langerhans were found to be definitely enlarged, but not distorted; the cells were not degenerated. In certain areas a hyperplasia was present and in one large island fatty infiltration could be seen; there was no fibrosis or lymphocytic infiltration. Phillips states that he could not establish any relationship between the pancreatic changes and the observations on the urinary system. He thought that they had both been present for some time and were entirely separate pathological conditions.

This report of Phillips is of interest in that it draws attention to the question of hypoglycæmia and its causation. In the present instance we are not concerned with what may be called normal hypoglycæmia—hypoglycæmia of a minor degree often found in adults, resulting from change in diet or abstention from food. (One observer who would no doubt be regarded as a philanthropist by the younger generation, pointed out that not only a dose of dextrose, but a cocktail would raise the blood sugar, and suggested that this might account for the vogue of cocktails!) A hypoglycæmia associated with actual pancreatic change is a different matter. It is sometimes forgotten that there is a condition which is the converse of diabetes. When the increase in size of the islands of Langerhans is not excessive, the resulting hyperinsulism may be combated by dietetic measures. From the cases reported in the literature and from those discussed in these pages from time to time it would appear that hypertrophy of the islands of Langerhans may progress until malignant disease of the islands occurs. Whether this is a progressive change remains to be proved. As far as treatment of hypertrophy of the islands is concerned, it has

been suggested by Allan, Boeck and Starr Judd that portion of the pancreas might be removed when hyperinsulism is persistent and severe. Operations have been undertaken for removal of part of the pancreas in these circumstances. In the present state of knowledge such treatment must be regarded as heroic.

#### INCOME TAX AND INCOME TAX RETURNS.

IN next week's issue we hope to publish a special article on income tax and income tax returns. The article, written by Mr. Robert J. Stiffe, A.C.A. (Aust.), will deal with Federal income tax returns and with the returns of each of the six States. Medical practitioners will find this article most useful; Mr. Stiffe has studied the subject for many years and is well qualified to explain matters that may appear obscure.

### Special Articles on Diagnosis.

(Contributed by Request.)

#### LI.

#### ACUTE INTRACRANIAL INFECTIONS.

#### THE DIFFERENTIAL DIAGNOSIS OF MENINGITIS AND MENINGISM.

IN the differential diagnosis of meningitis two factors become apparent: first, the diagnosis of the presence of meningitis and, secondly, the determination of the form of meningitis. There are signs and symptoms which collectively, rather than individually, suggest an intracranial infection; there are signs and symptoms which individually or collectively determine or assist in the determination of the type of infection present. In other words, there is a combination of signs and symptoms which occurs almost inevitably in meningitis, and its occurrence may be taken as being the result of meningeal inflammation or the consequent increased intracranial pressure.

#### The Diagnosis of the Presence of Meningitis.

The term meningism is reserved for a group of cases which present symptoms of meningitis and in which no pathological change can be found either in the cerebrospinal fluid or, if death occurs, in the meninges or cerebral tissues. The condition is presumably a state of toxæmia and its distinction from meningitis is of urgent importance.

The usual signs of toxæmia accompany these signs of pressure, but cannot be regarded as in any way diagnostic. *Taches cérébrales*, insomnia, restlessness, alteration of superficial or deep reflexes and pupillary dilatation occur as frequently in toxic meningism as in infective meningitis. Horder makes a useful point when he insists that if the headache and delirium coincide rather than alternate, as they do in a state of toxæmia, meningitis is probably present. Vomiting which continues through the illness after the period of invasion, as against the vomiting which is a feature of the onset of the illness, is supporting evidence of meningitis.

The mental state when the meninges are involved is fairly typical, though not universally maintained. Thus the premeningitic stage of drowsiness or stupor may deepen into mental and physical apathy and possibly later into coma, but, on the other hand, the active delirium so typical of toxæmia may be a marked feature. Yet even in

<sup>1</sup>The Journal of the American Medical Association, April 11, 1931.



these cases the usual apathy will occur at intervals. Even in the state of apathy the patient can be roused to answer questions rationally, though the reply tends to be monosyllabic. The return to apathy is immediate. Moreover, the patient resents interference, but, unless disturbed, will remain immobile, except to register protest against the headache or other accompanying discomfort.

Stiffness of the occipito-vertebral area in the absence of any local cause, such as fibrositis, peritonsillar abscess, retropharyngeal abscess, enlarged cervical glands, *otitis media* or injury, whether superficial or deep, is an indication of the presence of meningeal involvement. If, on attempting passive flexion of the head (Brudzinski's neck sign), there be dilatation of the pupils, the indication is confirmed. In combination with these signs, the presence of Kernig's and/or Brudzinski's leg signs adds further confirmation.

The meningeal cry so frequently heard in meningitis resembles no other cry, is hard to describe and much more difficult to forget.

Papilloedema or retinal hæmorrhages do not as a rule occur until the later stages of meningitis, but a routine examination of the *fundus oculi* should not be neglected. Early information may be obtained and the finding of tubercles in the chorioid may make the diagnosis of tuberculous meningitis possible long before it could be assumed by other investigational means. In infants the bulging of the fontanelle should be noted as evidence of increased intracranial tension. A varying strabismus in combination with other signs may be added evidence, but an established strabismus, especially that due to a paresis or paralysis of an external rectus muscle of the eye, signifies more extensive damage than can result from mere toxæmia or even meningism.

Cardiac arrhythmias are more common in the early stages of meningitis than of toxæmia. These arrhythmias are usually vagal in type and appear to accompany basal involvement. Occasionally it is possible to predict an early termination of life in a case of meningitis under observation when a cardiac irregularity of rate synchronizing with the respiratory rate occurs.

When a diagnosis of meningitis has been made from the examination so far detailed, the confirmation of the diagnosis finally rests with the results of the lumbar puncture and the findings of the examination of the fluid.

The use of a manometer to measure the pressure of the cerebro-spinal fluid is not so necessary in diagnostic lumbar puncture in a suspected case of meningitis as it is in the diagnosis of the presence of a cerebral or spinal tumour. In meningitis the increase in the pressure of the cerebro-spinal fluid is usually sufficient to be obvious.

Different types of manometer have been employed, but the most convenient is a glass tube with a bore of 1.5 millimetres and 350 millimetres in length. The tube is connected to the lumbar puncture needle by means of a three-way tap which permits fluid to be drawn off. In this method, which is recommended by Brain and Strauss in "Recent Advances in Neurology," the cerebro-spinal fluid is used to record its own pressure. The normal pressure is between 100 and 200 millimetres of cerebro-spinal fluid in an adult, but in cases of meningitis the pressure may reach 400 millimetres or more, necessitating the use of an extra piece of manometer tubing attached by rubber tubing to the original manometer. In occasional instances, whether it be from faulty technique, anatomical development, blocking of the needle, blocking of the foramina, or because of the thickness of the fluid, a "dry lumbar tap" may result. In these instances puncture of the *cisterna magna* should be performed without delay. In support of this statement the writer instances two cases.

The first was a case in which for weeks the cerebro-spinal fluid remained clear under increased pressure and presented a predominance of lymphocytes, but no organisms were detected. At this stage tuberculous meningitis was suspected, but, as subsequent events proved, it was one of those rare cases of cerebro-spinal fever with a lymphocytosis in the cerebro-spinal fluid throughout the course of the disease. Then "dry tap" resulted and the case progressed as one of posterior-basis meningitis. At this time the method of *cisterna magna* puncture was first

published and by this route cerebro-spinal fluid was obtained and was found to be swarming with meningococci.

The second case is of a small child, aged seven months, who, on the second day, presented signs of meningitis, but on whom two operators failed to perform lumbar puncture successfully. *Cisterna magna* puncture was then performed and the fluid obtained showed Gram-negative extracellular and intracellular diplococci. Lumbar puncture was not successful on repeated subsequent attempts. At the time of writing this infant seems to have totally recovered, there being no signs of residual blindness or deafness, hydrocephalus has not developed and the cerebro-spinal fluid is normal in all respects.

Puncture of the *cisterna magna* was first carried out by Ayer and, beyond calling for care, presents no great difficulties. Certain definite rules for guidance are laid down and must be followed. In cases of suspected meningitis, when it is always advisable to administer a general anæsthetic, the patient should be lying on one side with the head and the vertebral column on a level plane. The skin is prepared up to the level of the external occipital protuberance. The head should be moderately flexed. The index finger of one hand is placed upon the spine of the second cervical vertebra, a landmark which is easily recognized, as it is the first spine palpable. Immediately above this finger the needle is introduced in the mid-line and the line of the passage of the needle is a straight line joining the point of entry, the external auditory meatus and the glabella. The needle must be kept in the plane of the vertebral column.

At a depth of four to five centimetres, in an adult, the atlanto-occipital membrane is reached, giving a sense of resistance to the operator. As soon as the membrane is pierced the resistance will yield. At this stage the stylet should be withdrawn and cerebro-spinal fluid will drip through the needle. The margin between the *dura mater* and the medulla at this point in an adult is 2.5 to 3.0 centimetres, which allows ample margin for safety if this technique be followed. The needle should be guarded at six centimetres from its point, as it is not safe to introduce the needle beyond this distance.

The findings on examination of the normal cerebro-spinal fluid may be set out as follows:

Pressure: 100 to 200 millimetres cerebro-spinal fluid.

Appearance: Clear and colourless.

Cells: Two to five lymphocytes per cubic millimetre.

Protein: 0.02% to 0.04%, 20 to 40 milligrammes per 100 cubic centimetres.

Glucose: 0.05% to 0.06%, 50 to 60 milligrammes per 100 cubic centimetres.

Chlorides: 0.72% to 0.75%, 720 to 750 milligrammes per 100 cubic centimetres.

Lange gold curve: 0000110000.

In all cases a careful routine examination of the patient should be made, as there are a number of conditions which can simulate meningitis.

#### Pneumonia.

Pneumococcal consolidation of the lung, especially in a child, may present signs and symptoms suggestive of meningitis, whereas the condition is one of meningism. Diagnosis may present great difficulties, especially when it is remembered that a child may go through the course of pulmonary consolidation without presenting any stethoscopic signs until after the crisis has occurred. The frequency with which the right upper lobe proves to have been the infected area when this difficulty in diagnosis has arisen, has often been remarked upon. In the presence of dullness to percussion over the apex of the right upper lobe (if chronic tuberculosis can be excluded in the adult) and especially if the right pupil be dilated, pneumonia may be suspected. In meningism (as noted earlier) the cerebro-spinal fluid presents no abnormality, save a variable increase in pressure.

#### Acute Otitis Media.

An acute suppurative *otitis media*, with or without mastoid involvement, may present a picture closely resembling meningitis. This is particularly so in children in whom pyrexia, convulsions, headache, vomiting,

delirium and neck rigidity are common occurrences at the onset of acute middle ear infection. In combination with a rapid pulse these signs and symptoms will readily lead to a diagnosis of meningitis. It must be remembered that meningitis and suppurative *otitis media* may coexist and lumbar puncture may have to be resorted to in order to confirm the presence or absence of coexisting meningitis. Again, suppurative *otitis media* and brain abscess may occur together and a pulse rate of 50 or less per minute will favour a diagnosis of the latter complication rather than of a meningitis.

#### *Sinus Thrombosis.*

The clinical aspect of secondary lateral sinus thrombosis may approximate very closely to the picture of meningitis. Headache, drowsiness, deepening into coma, vomiting, delirium and convulsions, neck rigidity, strabismus, inequality of pupils and cardiac arrhythmia may render diagnosis difficult. If, however, the condition occurs after mastoidectomy and the clot extends into the jugular vein, where it may be felt in certain cases, and the patient complains of pain and stiffness in the side of the neck, the diagnosis is not so difficult. The onset of rigors will assist in the diagnosis of sinus thrombosis, but in certain cases lumbar puncture may prove to be necessary. The cerebro-spinal fluid in secondary lateral sinus thrombosis may be under increased pressure, but show no other abnormalities. It is said that if the longitudinal sinus be thrombosed, the cerebro-spinal fluid shows blood contamination. Cavernous sinus thrombosis seldom calls for a differential diagnosis, though meningitis may be present in rare cases.

#### *Pyelitis.*

Meningism so frequently accompanies pyelitis, especially in infants, that in the routine examination of the patient suspected of having an acute intracranial infection a microscopical examination of the urine is recommended.

#### *Gastro-Enteritis.*

In infants gastro-enteritis of either infective or dietetic origin may give rise to meningism and lumbar puncture be called for to determine the diagnosis.

#### THE ACUTE MENINGITIDES.

##### **Cerebro-Spinal Fever (Cerebro-Spinal Meningitis, Meningococcal Meningitis).**

During an epidemic of cerebro-spinal fever any contact developing pyrexia with a coryzal onset, with headache, is liable to be diagnosed as a suspected sufferer from cerebro-spinal meningitis, for it must be remembered that the first stage of this infection may appear to be nothing more than a local infection of the upper respiratory tract. The second stage suggests one of toxæmia. The patient is dull, apathetic, resents disturbance, gives the typical monosyllabic replies to questions, lies in a position of general muscular rest and complains of generalized soreness. The pulse is rapid and the temperature raised. The one striking feature at this stage is the mental apathy. In about 20% of cases the petechial rash, which gives to the disease the name spotted fever, is present during this stage. The rash varies from minute capillary hæmorrhages to larger hæmorrhagic spots or to purpuric areas in the fulminating cases. In some instances the spots resemble the roseola of typhoid fever, but they occur earlier, are dusky red, do not fade under pressure and are gone in three to four days, leaving a copper coloured stain. If the spleen enlarges, it does so early, whereas in typhoid fever the disease is usually well advanced before the spleen becomes palpable. Even at this stage, when the examination of the cerebro-spinal fluid presents no chemical or cytological abnormalities, an occasional extracellular Gram-negative diplococcus (diplococcus of Weichselbaum) may be seen. A blood count shows a leucocytosis up to 60,000, of which up to 90% may be polymorphonuclear leucocytes. The third stage is ushered in with some or all of the signs which have been described as indicative of meningitis. There are no distinctive clinical features.

Various types of this infection have been noted. A fulminating type has been frequently noted in the

epidemics, and has been characterized by the urgency of the symptoms, the rate of progress and the tendency to hæmorrhages. In sporadic cases, however, it is seldom that the disease is suspected until the third stage is ushered in and the diagnosis confirmed by finding the meningococci in the cerebro-spinal fluid.

In cerebro-spinal meningitis the pressure of the fluid cannot be taken as a guide to prognosis. Mild cases may present fluid under high pressure containing numerous meningococci, whilst a lower pressure may be found and the fluid may contain few organisms in a patient with a fulminating attack.

In the early stages the cerebro-spinal fluid is faintly turbid, but the turbidity may increase as the disease advances. The protein content is increased, whilst the sugar is diminished, in some cases almost to the point of absence. The chlorides are unaltered. The count, which may reach as high as 2,000 per cubic millimetre, shows as a rule a predominance of polymorphonuclear cells throughout the course of the disease. It must be remembered, however, that in the premeningitic stage there may be a lymphocytosis, but that during the acute meningitic stage the polymorphonuclear cells predominate. When the infection has become chronic, the cerebro-spinal fluid may become clear and the lymphocytes reappear. A smear stained by Gram's method will show, as a rule, the causative organism (the diplococcus of Weichselbaum), a biscuit or kidney shaped Gram-negative diplococcus, some of which, even in the earliest stages, are bound to be intracellular.

#### **Posterior Basic Meningitis.**

When posterior basic meningitis was first described by Gee and Barlow it was thought to be a specific disease. Later the characters of the causative microorganism were thought to differ from those of the meningococcus and the organism was given the name of Still's diplococcus. Recently it has become the practice to regard these organisms as identical and to regard posterior basic meningitis as a sporadic form of cerebro-spinal meningitis. Posterior basic meningitis occurs as a rule in infants from six months to two and a half years of age. The onset is usually sudden. The typical history is that the mother notices a twitching of face or limbs and seeks medical advice on account of possible convulsions. The child is treated for a gastro-enterological or other toxic cause, but in twenty-four hours the temperature rises to 39.4° or 40.5° C. (103° or 105° F.) and the child for the first time resents being handled and neck rigidity and Kernig's sign are present. The cerebro-spinal fluid is under increased pressure at this early stage and may be clear or faintly turbid. The cell count may be considerably raised, although it is not uncommon to find a count as low as ten cells per cubic millimetre. A stained smear shows the presence of Gram-negative extracellular and intracellular diplococci. The protein is unaltered or slightly increased and the sugar diminished. Dry puncture even at this stage is not uncommon, and it is in these cases that diagnostic *cisterna magna* puncture should not be delayed.

One of the remarkable features of this disease is the occurrence of the hydrocephalus, which may commence as early as the third day of illness. This hydrocephalus increases despite daily draining of the cerebro-spinal fluid by either the lumbar or *cisterna magna* route. The elastic character of the infant's skull is to a certain extent responsible for allowing the alteration in the size of the skull to occur, but when one realizes that as early as twenty-four hours after onset a dry lumbar puncture may be encountered, due, possibly, to the closure of the foramen of Magendie, the obstruction of the flow of the cerebro-spinal fluid from the cerebral ventricles to the subarachnoid space by adhesions is not difficult to accomplish. This view of the disease explains why the cerebro-spinal fluid may not be under great pressure, whilst the hydrocephalus is rapidly increasing.

#### **Tuberculous Meningitis.**

The early diagnosis of tuberculous meningitis presents the greatest difficulties, as its onset is gradual and its course, for a time at least, insidious. The earliest symptoms are of vague ill health, slight apathy with lassitude,

restlessness at night, with mild pyrexia and some vomiting. All these gradually become more definite, the apathy deepening to stupor from which it is difficult to rouse the patient, and finally to coma and death. No patient with proven tuberculous meningitis has recovered and the course is from a few days to three or four weeks after onset of meningeal signs. Even in the cases in which the onset is said to have been sudden, a carefully taken history will reveal that for a few days or even weeks the patient (usually a child) has not been in normal health or spirits. As the disease progresses, it shows the characteristic features of all other forms of meningitis, except that owing to the widespread deposition of tubercles there seems to be more likelihood of convulsions which may be hemiplegic, but they may become bilateral, following the march of cerebral involvement. All forms of ocular phenomena may occur towards the end of the first week, but papilloedema, when it occurs, is more usual towards the later stages.

In tuberculous meningitis the degree of head retraction is not so evident as in cerebro-spinal meningitis or posterior basic meningitis, but the abdomen is always markedly retracted and the child gives the appearance of one who has been ill for a longer period than the history suggests. The writer has not any statistics at hand as to the relative proportion of cases of bovine and human tuberculous infections in meningitis, but has been struck by his experience that in children there is so frequently a history of having been fed upon unsalted milk.

From the time the diagnosis is suspected the cerebro-spinal fluid in tuberculous meningitis is usually under moderately increased pressure, but in the later stage, when the confluence of tubercles gives the appearance of exudation on the brain surface, this initial increase of pressure may diminish. The fluid is usually quite clear, though the cell count may rise as high as 500 or even 1,000 cells per cubic millimetre, with an average of 100 to 200 per cubic millimetre. After standing for a short time, there appears a web-like clot of fibrin which, to the trained eye, is almost pathognomonic of the disease. In the early days of the disease many of the cells may be finely granular polymorphonuclear cells, but ere long a definite lymphocytosis is present, rarely less than 70 per cubic millimetre. The estimation of the chloride content proves most useful in diagnosis. The chloride content is always reduced and progressively decreases, and most authorities adopt the attitude that a reading of 650 or less is suggestive of tuberculous meningitis; a reading of 600 or less is diagnostic.

#### Pneumococcal Meningitis.

Primary pneumococcal meningitis is rare and as such is only diagnosed by the finding of the pneumococcus in the cerebro-spinal fluid. The condition usually accompanies or follows upon consolidation of the lung, but the primary focus may be in the upper respiratory tract, involving the nasal sinuses or the middle ear. The disease is almost invariably fatal and again the diagnosis depends upon the discovery of the pneumococcus in the cerebro-spinal fluid. The diagnosis of the onset of pneumococcal meningitis in the course of pneumonia presents difficulties according to the stage of the lung consolidation at which the suspicion arises. If occurring in the early stage when meningism is a possible complication, only lumbar puncture and examination of the cerebro-spinal fluid will settle the doubt. During the stage of advance acute headache with even slight rigidity should raise suspicion of intracranial infection, but if it occurs during the stage of decline or convalescence, the method of diagnosis is similar to that of any other type of meningitis. The cerebro-spinal fluid is under high pressure and is milky in appearance, and in some cases in the later stages may present a greenish colour and become thick. The pneumococcus is usually present in numbers, the count largely increased and the cells chiefly polymorphonuclear and finely granular.

#### Streptococcal and Staphylococcal Meningitis.

Streptococcal or staphylococcal meningitis is seldom a primary condition, but usually follows as a complication of some infective process in or around the skull, such as

nasal sinusitis, middle ear infection or mastoiditis. The onset of meningitis during the course of these infections leaves little room for doubt concerning the nature of the infection. The cerebro-spinal fluid is turbid and similar in characteristics to that of pneumococcal meningitis, except that the streptococcus or staphylococcus is found. Both the hemolytic and non-hemolytic types of the streptococcus have been isolated.

One point of interest is that when the meningitis is due to the spread of infection from a local source the headache of onset may remain localized for some time before becoming general.

#### Influenzal Meningitis.

In recent years there have been a comparatively small number of cases presenting the features of an acute meningitis with profound toxæmia. In them the march of events has been rapid and the disease fatal. The cerebro-spinal fluid has given the appearance of very thin pus and a striking feature has been the enormous number of *Bacillus influenzae* seen in stained smears. The presence of indol in the fluid is said to occur only in influenzal meningitis.

#### Typhoid Meningitis.

The mere finding of typhoid bacilli in the cerebro-spinal fluid in the course of typhoid fever does not necessarily prove the presence of typhoid meningitis. It may be necessary to withhold the diagnosis until subsequent examinations of the fluid have been made. An increase in protein and an increase in the cell count may then give reasonable grounds for the diagnosis. In one recorded case the cerebro-spinal fluid on the first examination was normal; twenty-four hours later the protein was increased and the cell count was six per cubic millimetre. On the following day the cell count had risen to fifteen per cubic millimetre.

#### Syphilitic Meningitis.

Involvement of the meninges occurs with frequency in neurosyphilis in all forms, is usually of insidious onset, and therefore does not come under the scope of acute intracranial infections. However, cases have been reported in adults in which the meningeal involvement was ushered in a manner simulating the onset of tuberculous meningitis. As a rule this appears coincident with the syphilitic roseola and the diagnosis depends on the Wassermann reaction of the cerebro-spinal fluid. (Infantile syphilitic meningitis commences usually in the early months of life with signs of gradual deterioration. The child takes less and less cognizance of its surroundings, and muscular power lessens until the child presents the characteristics of cerebral diplegia.)

In childhood, in occasional cases the onset appears to be sudden and the case presents the symptom complex of polioencephalitis. The monoplegic or diplegic character of the paralysis suggests a warning note in diagnosing polioencephalitis and a careful history will nearly always unfold a story of ill health over a fairly long period. The examination of the cerebro-spinal fluid finalizes the diagnosis. The Wassermann reaction is positive, the pressure considerably increased, the cells are raised in number to from 50 to 500 per cubic millimetre, 60% to 80% being lymphocytes. The protein is increased, the chloride content normal, and the fluid sterile on culture.

#### 'Other Forms of Meningitis.

Two rare forms of meningitis remain to be mentioned. Poynton and Payne have given evidence that meningitis in the course of rheumatic infection may be caused by the *Diplococcus rheumatica*. The term serous meningitis has been displaced by meningism.

#### OTHER ACUTE INTRACRANIAL INFECTIONS.

##### Acute Poliomyelitis.

There are numerous cases of acute poliomyelitis in the diagnosis of which meningitis of any type need not be considered, but there are certain cases in which the myeloencephalitic onset renders a diagnosis from meningitis urgently necessary. For the practical purpose of this



article it may be briefly said that lumbar or, if necessary, *cisterna magna* puncture followed by an immediate and thorough examination of the fluid will give the diagnosis.

The reception of a turbid fluid will eliminate the diagnosis of acute poliomyelitis. If the fluid be clear, the findings of the diplococcus of Weichselbaum will indicate cerebro-spinal meningitis. The real difficulty in the absence of this diplococcus will then be between acute poli-encephalitis and tuberculous meningitis. Apart from clinical examination and a careful history, possibly retaken at this stage, the estimation of the chloride content of the cerebro-spinal fluid will prove of real value. Any reduction will favour the diagnosis of tuberculous meningitis. For a detailed account of the diagnosis of acute anterior poliomyelitis or poli-encephalitis the excellent article number XXXVIII of this series, by Dr. Jean Macnamara, should be consulted.

#### Encephalitis Lethargica.

The literature on *encephalitis lethargica* is so voluminous and the symptoms so varied in their manifestations that it would be impossible in the scope of this article to give anything of a detailed description of its various forms and the diagnosis of them. More value would be derived possibly in attempting to distinguish the condition from the infections already described. Apart from the cases occurring during the well known epidemics in which the onset was more sudden, the onset of the cases occurring sporadically at the present time is more insidious. Malaise, fatigue, headache and blurring of vision are the most common symptoms. The lethargy, which does not occur in every case, may amount to somnolence by day and night, or by day alone followed by insomnia at night. In other cases delirium may be a marked feature, but is more a hallucinatory type, with a disorientation which may resemble that of alcoholism. The headache is not of the acute type of meningitis or of any intracranial increase of pressure. The blurring of vision may advance to a state of diplopia and most of the abnormal physical signs are ocular, such as ptosis, unilateral or bilateral, inequality of pupils, paresis of ocular muscles. Most commonly the tendon reflexes are diminished and this diminution may be unilateral. The plantar responses may be flexor or present a unilateral or bilateral extensor response. Kernig's sign and neck rigidity do not occur and signs of meningeal involvement are conspicuously absent.

In the writer's experience of post-epidemic *encephalitis lethargica* the cerebro-spinal fluid has been normal in all respects, but minor alterations have been reported by various observers.

Tuberculous meningitis in the early stages has been a matter for differential diagnosis, but the fact that the chlorides are unaltered in *encephalitis lethargica* has settled the diagnosis.

Two factors are present to assist in the differential diagnosis between acute poli-encephalitis and *encephalitis lethargica*. The latter has a gradual and insidious onset, extending possibly over weeks, whilst the former has at the most a history of a day or two before the establishment of symptoms. Secondly, whilst the cerebro-spinal fluid in both cases is similar in most characteristics, the fluid in acute poli-encephalitis will show an increase in polymorphonuclear cells for the first week at least. The fluid from a case of *encephalitis lethargica* will show no increase as a rule, whilst, if any increase at all occurs, it will be in the lymphocytes. Greenhill has met with polymorphonuclear cells in the cerebro-spinal fluid in *encephalitis lethargica*, but this is rare and in circumstances such as these it would be wiser, from the point of view of treatment, to regard the condition as poli-encephalitis. A Wassermann test should be done in all cases diagnosed as *encephalitis lethargica*, especially if seen first in an afebrile state.

#### Intracranial Abscess.

Infections of the ear are the most common cause of abscess of the brain, which for practical purposes may be said to be always a secondary condition. Various authorities estimate that 30% to 50% of abscesses of the brain arise as a result of otitis. The infection may spread

by direct extension, but metastatic abscesses may follow upon infections elsewhere in the body. Pulmonary septic conditions, particularly bronchiectasis, are the main cause of metastatic abscesses. A not infallible but useful rule is that abscesses arising from direct spread are single, whilst metastatic ones are multiple.

Abscess of the brain may be acute or chronic, and it is only the former with which this article deals. The signs and symptoms of acute intracranial abscess may be divided into four classes: (a) General, indicating toxæmia, (b) those suggesting increased intracranial pressure, (c) localizing signs, (d) terminal signs.

#### General Symptoms of Abscess.

The temperature as a rule is not high, but malaise is well marked, with anorexia, furred tongue and constipation. The mental symptoms are very varied in their character and may be due either to toxæmia or local suppuration. Delirium is not common. Lack of concentration, insomnia, irritability, changes of temperament or morality, and disorders of memory are amongst the varied mental changes noted.

#### Symptoms of Abscess Suggesting Increased Intracranial Pressure.

Extradural and subdural collections of pus may give very little in the way of signs suggesting increased pressure or of indications of localization, but, on the other hand, at times the pressure signs and symptoms may be very definite. In the true encephalitic abscess, however, there may be a latent period of weeks before the intracranial symptoms predominate, the symptoms being masked by those of the primary condition, until a sudden exacerbation terminates this stage. Headache is the most common sign suggesting increased pressure. Vomiting may be persistent and in the extradural and subdural cases papilloedema may be an early sign, but in the encephalitic type papilloedema is as a rule a late sign. Bradycardia is an almost constant sign and cardiac irregularities are common.

#### Localizing Signs of Abscess.

Local diagnosis may sometimes be rendered extremely difficult because of the mental fatigue of the patient, examination proving too tiresome to the patient to produce reliable results, or because of the somnolent state of the patient or the absence of localizing signs. The more recent and acute the abscess, the fewer are the localizing signs.

When the abscess has spread by extension from a local cause, the area of abscess is almost always in its vicinity. Thus those of otitic origin invade the temporal lobe or the cerebellum on the same side, those arising from ethmoiditis or sinusitis occupy the frontal lobe. Metastatic abscesses may occur anywhere in the brain substance, but more commonly in the parietal and occipital lobes. Without any attempt to give a complete list of localizing signs, the following are useful, but nothing more.

1. The presence of an extensor plantar response will give evidence of pyramidal tract involvement but no localization.
2. Monoplegia or hemiplegia may follow involvement of the pyramidal tract in the internal capsule or *corona radiata* or the motor areas and surrounding tissues.
3. Convulsions suggest cortical irritation, whilst it is said that abscesses in the vicinity of or involving the internal capsule give rise to somnolence.
4. Aphasia alone is not an indication of which hemisphere is involved.
5. Unilateral hypotonia, nystagmus or the adoption of abnormal attitudes suggests a cerebellar lesion.
6. Astereognosis, provided aphasia does not interfere with this test, indicates parietal lobe.
7. Olfactory hallucinations with convulsions indicate the temporo-sphenoidal lobe.

For operative purposes the distinction between temporal lobe abscess and cerebellar abscess is important. Right-sided temporal lobe abscess may give no special signs, except possibly hemianopia and contralateral hemiparesis and hemihyperæsthesia, while left-sided lesions present, as a rule, symptoms of aphasia. Cerebellar abscess may give

rise to ataxia, nystagmus, pain in the neck and occipital headache, possibly negative results to caloric tests and signs of labyrinthine involvement. There are times, however, when needling of the brain substance will find the abscess.

The presence of tonic innervation and forced grasping and groping may indicate a contralateral frontal lobe involvement. A short description of these terms and signs, the interpretation of which we owe to Adie and Critchley, may be useful. Tonic innervation means that when a group of muscles has been innervated voluntarily, the innervation persists. Thus a patient who closes his hand is unable to open it again and the more he attempts it, the less able he is to open it. When his attention is taken off his hand he can reopen it.

Forced groping and grasping are easily exemplified. A penholder drawn across the palmar surfaces of the fingers, especially the index finger, and thumb is immediately grasped by the fingers closing on it, and if an attempt be made to pull the penholder away, the grip is increased and some minutes elapse before relaxation occurs. If the palm of the hand at base of fingers be stimulated, the fingers close to grasp the object. If the object be missed, the fingers open, but if grasped, the grip increases, if the attempt be made to pull the object away.

Failure to relax the grasp is said to occur in true myotonia and some cerebellar conditions.

#### Terminal Signs of Abscess.

The abscess may terminate by rupture into a ventricle or by the involvement of the meninges. When rupture into a ventricle takes place, convulsions, delirium, hyperpyrexia, rapid pulse and respiratory distress, coma and death occur. Involvement of the meninges produces the usual signs of meningitis.

The pressure of the cerebro-spinal fluid in cerebral abscess may be normal or increased. The fluid is clear, showing a slight increase in the number of cells of a mixed variety. The protein is increased, but the chlorides are normal, except when the abscess is leaking, when the chloride and sugar content may both diminish. When meningitis occurs, the cerebro-spinal fluid shows the characteristics of suppurative meningitis.

#### Encephalitis Complicating Acute Specific Fevers.

Although interest has recently been revived in these cases as a result of encephalitis following upon vaccination, they appear to be similar to the condition described as acute hæmorrhagic encephalitis of Strumpell. The condition is characterized by the presence of hæmorrhagic foci scattered throughout the brain substance.

While the disease usually affects young children, adults are not immune. The infection may be fulminating and fatal. In the milder cases there may be a day or two of irritability preceding the onset. Headache is common, pulse is rapid and respiration often irregular. Convulsions may usher in the onset. The conditions at this stage may suddenly change, coma rapidly ensues with hyperpyrexia and death. In the patients who recover, paralyses are common, taking the form of monoplegia, hemiplegia or ocular or other cranial nerve palsies which are usually permanent.

Post-vaccinal encephalitis is still occupying the attention of neurologists, and those in favour of the theory that the virus of vaccinia is the causative organism draw attention to the facts that post-vaccinal encephalitis displays a constant symptomatology, that the incubation period is constant and the histology of the encephalitic changes unique.

The onset of nervous symptoms occurs between the ninth and nineteenth day, with headache, vomiting and fever and commonly flaccid paralyses, and almost always extensor plantar responses. Meningeal symptoms are common and trismus not uncommonly occurs. The cerebro-spinal fluid usually shows no abnormal characteristics, but occasionally there is an increase in the lymphocytes and the protein content. It has been said that an increase in the sugar content is an important diagnostic sign in encephalitis in children.

So far as the encephalitis complicating the acute specific fevers is concerned, it is unknown whether the primary infective organism or some secondary infection with nervous system predilection is the cause. The present position of our knowledge regarding the acute infective encephalopathies may be summed up briefly as follows.

The condition is due to one or many toxins producing acute degeneration of ganglion cells with generalized hyperæmia and œdema of the brain substance and distension of the perivascular tissues, but without any cellular infiltration, such as the "cuffing" seen in polioencephalitis or *encephalitis lethargica*. Similar changes may occur in the liver and kidneys.

The condition may manifest itself as: (i) Meningism (serous meningitis), (ii) acute hæmorrhagic encephalitis, (iii) acute toxic encephalitis with degeneration of nerve cells, for example, acute toxic measles, (iv) acute meningo-myeloencephalitis.

#### CONDITIONS SIMULATING ACUTE INTRACRANIAL INFECTIONS.

##### Pachymeningitis Hæmorrhagica Interna.

When *pachymeningitis hæmorrhagica interna* occurs in the senile or in the course of some of the hæmorrhagic diseases, such as scurvy, purpura hæmophilia, leucæmia *et cetera*, it seldom simulates an acute intracranial infection. Nor does it do so in those cases in which the symptoms appear insidiously some time after trauma of the head, but in cases in which, after a trivial or unknown (to the medical attendant) trauma, the onset is acute or even apoplectic, the diagnosis from meningitis may prove difficult, as head retraction may be very marked. To render the diagnosis more difficult, these patients usually present some pyrexia. The cerebro-spinal fluid may be blood stained or merely show xanthochromia. When the cerebro-spinal fluid is blood stained, centrifugalization will distinguish between hæmorrhage into the fluid and contamination during puncture. If the supernatant fluid shows a yellow colour, the blood is not due to contamination alone.

##### Spontaneous Intracranial Hæmorrhage.

There are rare cases which one meets, in which meningeal symptoms arise as a result of extravasation of blood into the subarachnoid space. This usually occurs in young adults. For no apparent reason, or maybe following trivial trauma, the patient develops acute headache with vomiting and soon becomes unconscious, and rigidity of the neck, inequality of pupils, irregularity of pulse, possible bradycardia and Kernig's sign soon develop. Lumbar puncture reveals heavily blood stained cerebro-spinal fluid which, apart from this spontaneous hæmorrhage, could only occur in a hæmorrhagic diathesis.

The age of the patient rules out arteriosclerosis and the like, and quite frequently the diagnosis is made consequent upon the rapid clearing of the symptoms following repeated lumbar punctures.

##### Malignant Endocarditis.

The meningeal form of malignant endocarditis reported by Osler has on rare occasions been mentioned in the literature. These cases can approach very closely in symptomatology to meningitis, but as a primary condition they must be extremely rare and all seem to arise in the course of some other infection. Signs of cardiac involvement may be absent altogether or only appear in the terminal stages. The condition is a fulminating one, death ensuing rapidly. The cerebro-spinal fluid apparently varies with the cerebral condition—usually hæmorrhagic—which is found at autopsy. The cells may be increased in number by some hundreds per cubic millimetre, lymphocytes usually predominating, but the fluid is sterile.

#### CONCLUSION.

In conclusion, one might stress once more that this article is an attempt to point out the following facts.

No matter how obvious a diagnosis of acute intracranial infection may appear, the diagnosis should not be made until a complete clinical examination has been carried out. If, when seen the first time, a patient be in a state

of coma, the presence of acute intracranial infection may be suspected, but examination of the fundi may reveal albuminuric retinitis and the heart may prove to be enlarged and signs of arteriosclerosis found, all suggesting the possibility of uræmia, or diabetic retinitis may be found, pointing to diabetes as the cause of the coma; a catheter specimen of urine may give confirmation of either. There will always remain the case, however, in which the diagnosis can be made only after examination of the cerebro-spinal fluid.

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## British Medical Association News.

### SCIENTIFIC.

A MEETING OF THE QUEENSLAND BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the B.M.A. Building, Adelaide Street, Brisbane, on May 10, 1931, Dr. F. HOPE MICHON, the President, in the chair.

#### Surgical Treatment of Prostatic Obstruction.

DR. A. S. ROE read a paper entitled: "Surgical Treatment of Prostatic Obstruction" (see page 775).

DR. J. J. POWER thanked Dr. Roe for his paper and for bringing up the question of prostatic obstruction. There were many ideas on the operative procedure in a case of prostatic obstruction. Two years previously Dr. Power had made certain remarks in regard to the operation suitable in such cases. Now he was entirely converted to the operation of Dr. Harry Harris, done in one or two stages. In most hands the suprapubic operation was far the easiest, and excellent results were obtained. It must, however, be done after the method of Harris; everything should be electrically lit, every stitch should have a definite object, all bleeding points should be tied, and there should be an indwelling catheter. Dr. Power was converted to this operation, whether in one stage or two. It must be mastered by using a large incision in the bladder, until the technique of the bladder neck sutures had been conquered, and Dr. Power hoped himself to become expert in Harris's methods. Many Americans had become converted to Harris's operation since his demonstrations to them last year.

The age was not important in the two-stage operation, provided the renal tests gave a good result. Dr. Power considered that Harris's method would become the standard one. Dr. Harris now did all his operations under spinal anaesthesia and this method had been followed in Brisbane by Dr. Power for the past two and a half years. If the operation were being done in two stages, the first stage was short and field block was the ideal method, but the anaesthetic was an important point in the second stage of the operation.

In the case of a median bar, the operation with the McCarthy punch, which was electrically lit, was most satisfactory. The cut surface was treated by diathermy afterwards through the cystoscope, and the method seemed ideal. After this was done, a catheter was left in. With regard to tying the vas, this should be done before the catheter was put into the urethra, no anaesthetic being necessary.

As to the position of the patient, Dr. Power considered the exaggerated Trendelenburg position the best, especially when only block anaesthesia was used, as there was a tendency for the patient to strain a little, and the exaggerated position got the intestines out of the way.

Dr. Power had had only one case in which he used radium for malignant disease. Dr. Harris and Dr. Gordon Craig considered deep X ray therapy more promising than radium. Dr. Power considered that in a case of indwelling catheter, that if the temperature rose twice, the catheter should be taken out and a suprapubic opera-

tion done. Patients whose prostates were inoperable through any cause, would be better with a permanent drain and a suprapubic apparatus.

DR. M. GRAHAM SUTTON said he had listened with great pleasure to Dr. Roe's paper, which was the result of his experience.

Dr. Sutton had not had so much experience in urology in the male as in the female, because he had until recently held an appointment at a women's hospital, so had not any very firm convictions as to prostatectomy. He felt with Dr. Power that spinal anaesthesia with "Spinocain," and failing that, gas and oxygen, was the one to be preferred.

With regard to tests, he used the blood urea and the indigo-carmin tests. The "phthalein" test was not much used in Brisbane, but Dr. Sutton used it with a colorimeter and was struck by its accuracy. Young stated that patients with prostatic obstruction might have a normal blood urea concentration and a poor "phthalein" excretion, so he used both and considered the latter important.

The question of perineal and suprapubic route had been a very vexed one since 1901, when Freyer popularized the latter. Young was the world's exponent of the perineal operation. At the Brisbane Hospital Dr. Sutton had charge of some of the gonorrhoeal patients with prostatic abscess *et cetera*. He had had occasion to open two of these through the perineal route and was very struck with the way one could get on to the posterior surface of the prostate, even though not using a Young's tractor. The exposure by Young's technique must be very good.

In America they claimed that the perineal operation had a lower mortality than the suprapubic, and Young had worked out a technique of closure in line with Harry Harris's operation. The thought had struck him that this was the more direct method of approach and did away with the necessity of opening into the bladder suprapubically, only to close it again. He would like to ask what was the mortality from simple primary suprapubic cystotomy. He had treated with radium one patient with malignant disease of the prostate. The patient had been relieved, but had lived only eight months. With regard to what Dr. Roe had said about decompression, he felt sure that Dr. Roe, by letting a little urine out at intervals, was doing the same thing as Young and Shaw did with their apparatus. The great point about decompression was to let the urine out slowly and not all at once, so as not to lower the back pressure in the kidneys suddenly and upset the renal circulation. Dr. Sutton considered that in doubtful cases in the diagnosis of early prostatic hypertrophy from median bar, the McCarthy panendoscope greatly facilitated the diagnosis by allowing a view of the prostatic urethra and the bladder neck from below, and he favoured the McCarthy punch, which gave a good view. One could flush out the field and fulgurate afterwards.

DR. N. M. GUTTERIDGE appreciated Dr. Roe's paper and the comments on it. Two points he wished to refer to. Dr. Roe had mentioned the salivary urea test. It was doubtful whether it was sufficiently accurate, except for showing a pronounced deviation from the normal. It could be done in a very short time, but, though simple, factors in it left loopholes for inaccuracy.

With regard to the estimation of blood urea, a technical point was the necessity for the clinician to mix the blood thoroughly with the anticoagulant when taking the specimen for examination at a pathological laboratory. The tube should be shaken for a full minute.

What was the proportion of malignant prostates in the series, and what did the urological literature indicate as being the incidence of malignant disease in routine histological examination of prostates? He had examined several prostates after removal in which, in different areas of the same gland, the histological pictures of typical "hypertrophy" and definite malignant change had coexisted. In one such case in which the prostate was as large as a tennis ball, a small nodule had been excised through the suprapubic wound and histological section showed a typical "hypertrophy." When the whole prostate had been removed, however, it was found to be almost wholly malignant, a strange feature being that it was riddled with thousands of calculi. The growth had extended towards the rectum and the patient died soon after the operation.



Dr. Roe in reply stated that he was unable to supply statistics, as he had not had time to go over them.

With regard to malignant changes, till lately he had only had sectioned those prostates which would not enucleate easily. During the last six months all prostates had been sectioned and the number found with malignant disease was surprising.

In reply to Dr. Sutton, Dr. Roe said he, as far as he could remember, had not had immediate deaths from suprapubic cystotomy. He was a very conservative surgeon. In "bad risk" patients he had made a practice of draining by a catheter before doing a suprapubic cystotomy under local anaesthesia.

He argued with Dr. Power that Dr. Harris's operation was wonderful, and wished that he had the pluck to sew the bladder up, but he felt much happier with a suprapubic wound, as he considered that there was much less risk of blocking. He admitted that Dr. Harris's operation was the ideal thing, but the main argument about a prostatectomy was the renal function. Nobody yet had worked out the expectation of life following each method. This had still to be properly investigated.

He considered that if a patient's bladder were drained suprapubically, he went on improving and the expectation of life was increased.

It was not the mechanical part of the operation that Dr. Roe thought most important. The question was what health and comfort the man was going to have after his wound was healed up and he was out of hospital.

A MEETING OF THE QUEENSLAND BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Mater Misericordiae Hospital, Brisbane, on March 6, 1931. The meeting took the form of a series of demonstrations by the members of the honorary staff.

#### Ectopia Vesicae.

DR. A. S. ROE showed a female patient, aged fourteen years, who had been handed over to him eight years previously with complete *ectopia vesicae*. Dr. Roe had followed an article in one of the Mayo Clinic papers of 1917, and had transplanted the right ureter into the rectum. The patient had become semi-uræmic, as the Mayo Clinic article stated such patients always did. The wound gave a lot of trouble and three months were then allowed to elapse before the left ureter was transplanted into the rectum. The patient still had a weak abdominal wall. She was fourteen years old and had been going to school since she was eight, and to all intents and purposes was able to take an ordinary part in life.

Dr. Roe said that some years before the patient had been having recurrent attacks of septic tonsillitis which was affecting her renal condition, the urinary control being very much worse during the attacks. The tonsils were removed, but incompletely. The child improved, but for the last few months she had been not so well again, suffering with recurrent headaches and a raised temperature. At these times her control of her urine was not so good. She was to come into hospital shortly for complete removal of her tonsils.

The patient could hold her urine for four hours during the day and she had to get up three times during the night. There was greater frequency during the attacks of feverishness.

Dr. Roe stated that at the operation the base of the bladder had not been removed, and it was proposed to do this by fulguration. He also intended to try to get a pyelogram. The renal function was moderately good, judging by the way the child got about. The mental improvement after the operation had been marked.

#### Gastro-Enterostomy and Colopexy.

DR. E. D. AHERN showed a male, aged forty-three years, who had suffered for five years from distressing dyspepsia. He had been admitted to hospital and an X ray examination was performed. This revealed a definite deformity of the angle and a diagnosis of a probable gastric ulcer and

a possible carcinoma was made. A gastric analysis resulted in a very high acid curve, suggesting a duodenal ulcer.

At operation a large gastric ulcer was found at the angle, extending 3.75 centimetres (one and a half inches) in all directions; a posterior gastro-enterostomy was performed proximal from the ulcer. From the time of the operation the patient did not suffer any pain. One week after his discharge from hospital he had nausea and vomited, but had no pain. This was repeated at intervals and alkalis were tried without success. Examination revealed nothing definite, though a right-sided ptosis of the bowel was suspected and this was confirmed by X ray findings. The ptosis was treated symptomatically, but finally colopexy was performed. At operation it was found that the ulcer was healed and that the area was free, there being only a little white scarring of the peritoneum. The anastomosis was found to be functioning well. Dr. Ahern said that since colopexy was performed the patient had had no vomiting or distress and was putting on weight. The patient was shown to demonstrate the cause of the failure of a gastro-enterostomy to cure the dyspepsia.

#### Posterior Gastro-Enterostomy.

Dr. Ahern also showed a male patient, twenty-three years old, who had well marked tenderness in the epigastrium and over the gall bladder. The condition had been diagnosed as a gall bladder lesion, but at operation a large duodenal ulcer was found. A gastro-enterostomy was performed and the appendix, which was adherent and curling round the caecum, was removed; the caecum was pulled over into position. Five days after operation the patient vomited large quantities of fluid. The stomach was washed out for three or four days, and the patient improved. An X ray examination revealed that there was practically no movement of the stomach and nothing was going through the anastomosis. On the man being turned to the right the meal passed into the pylorus and duodenum, and then reversed back to the stomach. This was probably due to some anomalous activity of the sympathetic nervous system. However, the patient left hospital perfectly well. He would probably suffer from attacks of vomiting and was told that he might require a colopexy. This patient illustrated a condition which so far was cured symptomatically.

#### Erythema Multiforme.

DR. J. T. HENRY showed two cases of *erythema multiforme*, which, however, were not typical of the disease. One patient was a woman suffering with pains in the ankle and the other a man with similar pains all over the body.

The woman had been suffering with pain in the right leg for one year; her ankle had then become very swollen and an osteomyelitis had been suspected, but an X ray examination revealed nothing. Her condition was then diagnosed as rheumatic fever and she was treated with salicylates. Her temperature, which was 39.7° C. (103.6° F.), became normal in four days. She had a bulla present on the big toe and the dorsum of the foot.

The man had suffered with pains in the joints and a temperature of 39.8° C. (103.8° F.), which finally came down to normal for fourteen days. He was treated with salicylates. He also had bullae on both lateral malleoli; these were opened and cleared up. He had complained of abdominal pain.

In neither instance was any septic focus or reason for the illness found. Calcium lactate was used without success.

#### Neurological Case for Investigation.

DR. ELLIS MURPHY showed a boy, twelve years old, who was quite well till he was five years old. He was gored by a cow, and from that time he began to lose power in his legs and to get peculiar spasms of the face. Mentally the child was quite bright.

Examination revealed a spasmodic torticollis to the right side. There were choreiform movements of the face

resembling a tic, and there was slight tremor of the right hand and arm. The pupils reacted sluggishly to light and did not react to accommodation. The tongue deviated to the right, and smiling and whistling were practically normal. There was no wasting of the limbs and the reflexes were slightly exaggerated on the right side. The ankle jerks were present and equal, and there was no patellar clonus. The plantar reflexes were indefinite. The blood reacted strongly to the Wassermann test; the cerebro-spinal fluid gave no reaction to the Wassermann test, it contained no increase in cells, sugar was present, also a trace of globulin.

The differential diagnosis included encephalitis, which at that age sometimes left bizarre results. The only evidence, however, of encephalitis was the lack of accommodation; the boy showed no spasticity or Parkinsonism. The tremor was slightly suggestive of encephalitis.

Little's disease also was to be considered; sometimes it did not become evident till the patient was four to five years of age.

A third disease was congenital syphilis, points in the favour of which disease were the bad teeth and the positive Wassermann reaction. There was no definite evidence in the cerebro-spinal fluid and the nerve signs did not fit in with this diagnosis.

The fourth diagnosis was neurosis, and this was upheld by the spasmodic torticollis and the tic, also by the gait, which was not spastic, but rather bizarre.

Dr. Murphy considered that a diagnosis of neurosis in association with a positive Wassermann reaction had to be well considered.

#### Hydro-Pneumothorax.

DR. P. B. MACGREGOR showed a male patient, twenty-four years old, whose illness had begun one month previously. At its commencement he felt ill and went to bed for five days; he had the shivers and felt hot and cold, but had no cough or pain. He had had no previous illnesses and had gained weight in the last year.

After this short illness he felt better and went to work. During the day he had pain in the right chest which was worse on taking a deep breath. He went home to bed and was admitted to hospital next day. His only complaint was pain in the right side of the chest. His temperature was 39.4° C. (103° F.). He had no cough or sputum, but stated that he had coughed up blood on two occasions. His pulse rate was 104 per minute; there was a friction rub in the neighbourhood of the right nipple over a circular area about 7.5 centimetres (three inches) in diameter. At the right base posteriorly the resonance and breath sounds were impaired and a flat note was present on percussion. The patient complained of pain under the right costal margin. He had been given the ordinary treatment for pleurisy and had been allowed out of bed after his temperature was normal for five days. His temperature then rose slightly again, but his only complaint was that he was slightly uncomfortable. He had no pain or cough. At this stage the friction rub in the chest had disappeared. The area at the right base posteriorly was becoming duller and the breath sounds fainter. The Widal test gave no reaction. The urine contained albumin and motile bacilli, but no pus or casts. Some days later the area at the base of the right lung was noticed to be bulging a little and was needled, but without success. A blood count was done and revealed diminution in the number of red cells. An X ray photograph was taken.

Dr. Ellis Murphy saw the patient in conjunction with Dr. Macgregor and he mentioned the bulging on the right side of the chest, the hyperresonance of the anterior part of the chest, and the dullness down the right side of the spine and at the base. The man had a spontaneous pneumothorax, which was shown by the skiagram. The dullness down the spine showed that the lung was collapsed on to the spine. The pneumothorax was more pronounced anteriorly than posteriorly.

#### Solitary Cyst of the Kidney.

DR. L. MCKILLOP showed a specimen of a solitary cyst of the left kidney, removed from a woman who had com-

plained of discomfort after food for sixteen years. Gastro-intestinal and renal X ray examinations had been made and had revealed a small amount of ptosis of the right colon and signs of a chronic appendicitis. Operation was performed; the appendix was found to contain concretions and was removed. Then the cyst of the kidney was discovered. Renal efficiency tests were performed, another operation was done and the left kidney was removed. The renal test had been performed by Dr. Power, who said that the left kidney appeared to be perfectly normal. The cyst had not encroached on the pelvis of the kidney.

#### Lesion of the Rectum.

Dr. McKillop then related the history of a female patient, who had been admitted on February 14, 1931, complaining of a progressively increasing constipation. She had a certain amount of pain on defaecation and a feeling of pelvic discomfort had been gradually increasing for two or three weeks before admission.

A *per vaginam* examination was made and a large mass was felt through the posterior fornix, which was thought to be an incarcerated fibroid of the uterus. No *per rectum* examination was made.

On February 16, 1931, operation was performed. The abdomen was opened; the uterus, tubes and ovaries were found to be perfectly normal. A condition was present behind the rectum which was akin to a parametritis. It appeared as if the meso-rectum had been opened and plaster of Paris poured in and moulded round the rectum, except in front. The mucous membrane of the rectum was felt to be quite normal; no carcinoma was present. A thorough examination was made of the liver and nothing abnormal was found, and the glands in the meso-rectum were normal. The wound was closed.

The Wassermann test gave no reaction. The only treatment given was glycerine tampons. Ten days later the patient was examined again and the condition was found to have cleared up.

#### Infective Arthritis.

DR. G. MACARTNEY showed a male patient, aged thirty-three years. The patient was presented because of the interesting series of skiagrams. The man had been sent into hospital as a sufferer from acute osteomyelitis of the lower end of the radius. Swelling was present in that position and he was very ill. Operation was performed, but no free pus was found, only a sloughing condition of the subcutaneous tissues. The bone was drilled and the wound closed.

A few days later the arm and hand were examined by X rays and rarefaction of the heads of the metacarpal bones, the carpal bones, the lower end of the radius and the ulna were found. The condition was probably due to an infective arthritis. The hand was placed in a cock-up splint and diathermy given over a long period, and at the time of demonstration the man had a very useful wrist. He had not complete flexion, but he had very good extension and a good grip. The only remnant left was a little arthritis between the semilunar bone and the radius.

## Correspondence.

### PROFESSIONAL ADVERTISEMENT.

SIR: Though it is a generally accepted axiom that one's family is one's severest critic, there are moments when the exception proves the rule. Accordingly, I ask you to be good enough to allow me to support with becoming moderation my brother's remarks concerning "advertising" and "general meetings."

It is certainly quite time that we put a stop to our Association being controlled by 5% of its members. In any case, what a screaming farce it is to call a "general meeting" in the full knowledge that the majority of members cannot possibly attend. It reminds one of the

annual meeting of the Seamen's Union in London, which can only be attended by those who don't happen to be seamen at the time.

That photo, question makes me shiver with apprehension lest another Bradman should arise who should happen to be a doctor. Imagine for one moment the critical moment at Lords when a photo. is to be taken of the Australian Eleven in company with His Majesty the King. The stage is set and that dramatic hush that precedes a great event has overwhelmed all. "Are you all ready?" say a hundred press photographers, "then smile, please." Suddenly a broken sob is heard from the front row and a bowed figure rushes from the group. "Oh, please, Your Majesty," sobs our medical Bradman, "I cannot have my photo. taken with you; my union won't let me."

Isn't it time our counsellors got rid of their school-girlish complex about telling everyone how to behave themselves and got down to something really useful?

Yours more in amusement than anger,

BROUGHTON BARRY.

"Stirling,"  
Lindfield Avenue,  
Lindfield,  
May 25, 1931.

### Books Received.

**MATERIA MEDICA, PHARMACY, PHARMACOLOGY AND THERAPEUTICS**, by W. Hale-White, K.B.E., M.D., LL.D.; Twentieth Edition, revised by A. H. Douthwaite, M.D., F.R.C.P.; 1931. London: J. and A. Churchill; Sydney: Angus and Robertson. Pp. 720.

**AIDS TO MEDICAL DIAGNOSIS**, by A. Whiting, M.D.; Fourth Edition; 1931. London: Baillière, Tindall and Cox. Pp. 8vo., pp. 188. Price: 3s. 6d. net.

**AIDS TO MEDICAL TREATMENT**, by J. T. Lewis, M.D., B.Sc., M.R.C.P., and T. H. Crozier, M.D., D.P.H., M.R.C.P.; 1931. London: Baillière, Tindall and Cox. Pp. 8vo., pp. 251. Price: 3s. 6d. net.

**THE CONDUCT OF LIFE ASSURANCE EXAMINATIONS**, by E. M. Brockbank, M.D., F.R.C.P.; 1931. London: H. K. Lewis. Demy 8vo., pp. 180. Price: 7s. 6d. net.

**THE ALCOHOL HABIT AND ITS TREATMENT**, by W. E. Masters, M.D., M.R.C.S., D.P.H.; 1931. London: H. K. Lewis. Crown 8vo., pp. 207. Price: 6s. net.

**HOW TO KEEP FIT AFTER FORTY**, by R. Thornhill, M.B., Ch.B.; 1931. London: Methuen and Company. Crown 8vo., pp. 126, with ten illustrations. Price: 2s. 6d. net.

**HEALTH AND SOCIAL EVOLUTION**, by Sir George Newman, K.C.B., M.D., D.C.L., LL.D. (Halley Stewart Lecture, 1930); 1931. London: George Allen and Unwin. Crown 8vo., pp. 200. Price: 4s. 6d. net.

### Diary for the Month.

- JULY 1.—Victorian Branch, B.M.A.: Branch.
- JULY 2.—South Australian Branch, B.M.A.: Council.
- JULY 3.—Queensland Branch, B.M.A.: Branch.
- JULY 7.—New South Wales Branch, B.M.A.: Organization and Science Committee.
- JULY 10.—Queensland Branch, B.M.A.: Council.
- JULY 14.—New South Wales Branch, B.M.A.: Ethics Committee.
- JULY 21.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
- JULY 22.—Victorian Branch, B.M.A.: Council.
- JULY 24.—Queensland Branch, B.M.A.: Council.
- JULY 28.—New South Wales Branch, B.M.A.: Medical Politics Committee.
- JULY 30.—South Australian Branch, B.M.A.: Branch.
- JULY 30.—New South Wales Branch, B.M.A.: Branch.

### Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xvii.

NEW SOUTH WALES MASONIC HOSPITAL, SYDNEY: Honorary Vacancies.

REPATRIATION COMMISSION: Resident Medical Officer.

### Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 135, Macquarie Street, Sydney.	Australian Natives' Association. Ashfield and District United Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham United Friendly Societies' Dispensary. Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney. North Sydney Friendly Societies' Dispensary Limited. People's Prudential Assurance Company, Limited. Phoenix Mutual Provident Society.
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QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Members desiring to accept appointment in ANY COUNTRY HOSPITAL, are advised to submit a copy of their agreement to the Council before signing, in their own interests. Brisbane Associated Friendly Societies' Medical Institute. Mount Isa Hospital. Mount Isa Mines. Toowoomba Associated Friendly Societies' Medical Institute.
SOUTH AUSTRALIAN: Secretary, 207, North Terrace, Adelaide.	All Lodge Appointments in South Australia. All Contract Practice Appointments in South Australia.
WESTERN AUSTRALIAN: Honorary Secretary, 65, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND (Wellington Division): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

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## INDEX TO VOLUME I, 1931.

JANUARY TO JUNE.

	Page.
<b>A</b>	
Abdomen and Pelvis; Emergency Surgery, by H. Bailey (rev.)	633
Aborigines, Poisoned Spears of the Australian, by J. MacPherson	780
Abrahams, A. (Exercise, Its Functions, Varieties and Applications) (rev.)	261
<b>Abscess—</b>	
In the Pouch of Douglas	646
Of the Lung	586
Pulmonary	50
<b>Abstracts—</b>	
<b>Authors—</b>	
Ackerman, S., and E. Radu	119
Agaronow, A. M.	610
Ajamil, L. F.	758
Albiston, H. E.	728
Albrecht, H.	610
Allen, E., J. P. Pratt <i>et alii</i>	145
Amy, P., and M. Chiray	541
Anderson, F. N.	638
Anderson, G. W., and E. A. Lane	323
Anton, G., and J. Jacobi	206
Apperly, F. L., and J. A. Norris	176
Artz, F.	267
Asherson, N.	266
Barach, A. L.	728
Barber, H. W.	414
Barenberg, L. H., J. M. Lewis and W. H. Messer	294
Barnett, E. J.	638
Barrington, F. J. F., and H. D. Wright	759
Barschansky	89
Bast, T. H., and E. F. Hoffmann	145
Bauer, J. H., and A. F. Mahaffy	52
Beadles, J. R., W. W. Braman and H. H. Mitchell	511
Beerman, H., J. H. Stokes and T. H. Miller	758
Begg, R. C.	483
Behrens, C. A., and C. H. Keipper	52
Bellet, S. and J. B. Wolfe	356
Berkheiser, E. J., and F. Seidler	639
Bertrand, I., Souques and Crouzon	357
Biggart, J. H., and A. M. Drennan	384
Bill, A. H.	611
Blaine, E. S.	118, 639
Bland, P. B., L. Goldstein and A. First	267
Bohrod, M. G.	144
Boissel, G.	356
Boit, H.	759
Bradfield, E. W. C.	119
Bradley, W. H.	638
Braman, W. W., J. R. Beadles and H. H. Mitchell	511
Brigham, M. W., A. B. Wadsworth and J. E. Van Amstel	384
Brown, G. E.	356, 540
Brown, T. K.	267

	Page.
<b>Abstracts from Current Medical Literature—Continued.</b>	
<b>Authors—Continued.</b>	
Brown, W. G. S., and R. W. Fairbrother	384
Brügel, S., and R. Paschkis	414
Brugsch, H., and W. P. Murphy	206
Brundage, D. K.	729
Brunschwig, A., D. B. Phemister and L. Day	295
Bucy, P. C.	145
Bullock, J. K.	511
Bumpus, H. C., Junior	759
Campbell, M. F.	415
Chiray, M., and P. Amy	541
Clark, E. R. and E. L.	483
Clearkin, P. A.	144
Cokkinis, A. J.	239
Cole, L. G. and W. G., R. W. Morse, R. E. Pound and C. L. Headland	118
Corbus, B. C., and V. J. O'Connor	415
Cornwell, M. A., and O. H. Robertson	53
Cottrell, J. E., and F. C. Wood	698
Cowan, J., R. Cruickshank, D. P. Cuthbertson, J. Fleming and A. W. Harrington	698
Cremieux, A., and H. Roger	357
Creutzfeldt, H. G., and R. Hornung	267
Critchley, M.	21
Crouzon, Souques and I. Bertrand	357
Cruickshank, R., J. Cowan, D. P. Cuthbertson, J. Fleming and A. W. Harrington	698
Cullinan, E. R.	144
Cummins, S. L.	53
Curle, R., and S. W. Smith	414
Cushing, H.	570
Cuthbertson, D. P., J. Cowan, R. Cruickshank, J. Fleming and A. W. Harrington	698
D'Aunoy, R., and A. Zoeller	238
Davis, L., and L. J. Pollock	145
Day, L., D. B. Phemister and A. Brunschwig	295
Debenham, R. K.	89
Detwiler, S. R.	483
Dhunjibhoy, J. E.	21
Dodds, G. S.	145
Dorst, S. E., and J. A. Freiberg	207
dos Santos, R.	414
Dowling, J. I.	669
Drennan, A. M., and J. H. Biggart	384
Du Bois, E. F., and W. S. McClellan	177
Dunlop, D. M., D. M. Lyon and C. P. Stewart	698
Einhorn, M.	207, 698
Eley, R. C.	294
Elmer, A. W., L. Ptaszek and M. Scheps	571
Escudero, P.	414
Evans, H. M., S. Lepovsky and C. Wood	177

	Page.
<b>Abstracts from Current Medical Literature—Continued.</b>	
<b>Authors—Continued.</b>	
Evans, M.	669
Fairbrother, R. W., and W. G. S. Brown	384
Feldman, M.	118
Fey, B., and F. Legueu	89
Figli, F. A.	356
Finkelstein, H.	295
First, A., P. B. Bland and L. Goldstein	267
Fleming, J., J. Cowan, R. Cruickshank, D. P. Cuthbertson and A. W. Harrington	698
Fliegel, O.	639
Fontaine, R., and R. Leriche	239
Foord, A. G., F. J. Parmenter and C. S. Leutenegger	759
Fraser, J. S.	669
Freedman, E.	446
Freedman, N.	610
Freiberg, J. A., and S. E. Dorst	207
Friedman, B.	322
and A. Rötth	322
Gardner, W. J.	669
Garland, H. G., and W. R. Russell	699
Gaspar, I., and D. R. Melen	759
Gater, B. A. R.	729
Gatewood and Mullen	238
Gauss, H.	540
Geist, F. D.	145
Gibson, A. G.	699
Gloyne, S. R.	540
Goadby, H. K.	723
Goldby, F.	21
Goldstein, L., P. B. Bland and A. First	267
Good, L. P.	571
Graham, T. N., and B. Throne	414
Grant, F. C.	295
Grasso, H. L.	639
Gray, P. A., and W. D. Sansum	20
Gray, S. H.	177
Griffith, A. S.	728
Grinnell, F. B.	384
Grossman, H. D.	88
Grüneberg, J.	89
Guida, G.	669
Hampson, A. C., and E. C. Warner	638
Hanzlik, P. J., and H. G. Mehrtens	88
Harrington, A. W., J. Cowan, R. Cruickshank, D. P. Cuthbertson and J. Fleming	698
Harris, R. I.	639
Hartz, W.	323
Headland, C. L., L. G. Cole, R. W. Morse, R. E. Pound and W. G. Cole	118
Hedblom, C. A.	570
Heim, K.	611
Hess, E.	415
Heuer, G. J., and D. T. Vail, Junior	668
Hibbs, R. A.	639
Hickman, E. M., and M. J. Stewart	482

Abstracts from Current Medical Literature—Continued.	Page.
Authors—Continued.	
Hirsch, E. W. . . . .	759
Hoffman, E. F., and T. H. Bast . . . .	145
Holth, S. . . . .	322
Hornung, R., and H. G. Creutzfeldt . . . .	267
Hryntsckak, T. . . . .	759
Hsieh, C. K., and C. Wu . . . .	446
Hughes, W. L. . . . .	668
Hutchison, R.—	
And A. Moncrieff . . . .	638
And S. L. Simpson . . . .	294
Hyland, H. H., and W. R. Russell . . . .	699
Isaacs, R., and C. C. Sturgis . . . .	356
Jackson, C. . . . .	322
Jacobi, J., and G. Anton . . . .	206
Jacobson, H. P. . . . .	88
Jalcowitz, A. . . . .	570
Jordan, H. E., and C. C. Speidel . . . .	483
Jungle, C. W., and D. Khorago . . . .	52
Kamikawa, Saito and Yanagizawa . . . .	238
Kaplen, I. I. . . . .	119
Kay, H. D. . . . .	511
Keipper, C. H., and C. A. Behrens . . . .	52
Kessler, R. . . . .	611
Kesten, B., and E. Laszlo . . . .	758
Khorago, D., and C. W. Jungle . . . .	52
King, E. S. J. . . . .	482
Klemperer, P., and S. Otani . . . .	482
Knox, L. C. . . . .	20
Koff, K., and C. Novak . . . .	266
Krasnow, F., M. R. Mayers and H. Rivkin . . . .	729
Kretschmer, H. L. . . . .	238
Kuhn, H. S. . . . .	668
Lakatos, V. . . . .	571
Lambert, V., and D. Stewart . . . .	323
Landis, E. M. . . . .	176
Lane, E. A., and G. W. Anderson . . . .	323
Larkum, N. W., and M. F. Semmes . . . .	52
Laszlo, E., and B. Kesten . . . .	758
Lees, J. M., and O. G. Morgan . . . .	322
Legueu, F., and B. Fey . . . .	89
Leifson, E. . . . .	52
Lepovsky, S., C. Wood and H. M. Evans . . . .	177
Leriche, R., and R. Fontaine . . . .	239
Leutenegger, C. S., F. J. Parmenter and A. G. Foord . . . .	759
Lewis, J. M., L. H. Barenberg and W. H. Messer . . . .	294
Lewis, T. . . . .	176
Lippmann, A. . . . .	206
Lyon, D. M., D. M. Dunlop and C. P. Stewart . . . .	698
Macht, D. I., and I. R. Pels . . . .	758
MacLachlan, W. . . . .	385
Mahaffy, A. F., and J. H. Bauer . . . .	52
Mallardo, C. A. . . . .	52
Martynow, W. . . . .	482
Matz, P. B. . . . .	21
Mayer, L. . . . .	639
Mayers, M. R., H. Rivkin and F. Krasnow . . . .	729
Mazzola, V., and J. O. Polak . . . .	267
McClellan, W. S.—	
And E. F. Du Bois . . . .	177
V. R. Rupp and V. Toscani . . . .	177
McCoy, J. . . . .	669
McDougall, W. . . . .	21
McKenzie, D. . . . .	669

Abstracts from Current Medical Literature—Continued.	Page.
Authors—Continued.	
Mehrtens, H. G., and P. J. Hanzlik . . . .	88
Melen, D. R., and I. Gaspar . . . .	759
Messer, W. H., L. H. Barenberg and J. M. Lewis . . . .	294
Meyer, A. W. . . . .	239
Meyerding, H. W., and R. J. Mroz . . . .	295
Michelson, L. . . . .	415
Mignot, R. . . . .	20
Miller, J. I. . . . .	207
Miller, T. H., J. H. Stokes and H. Beerman . . . .	758
Mills, R. G. . . . .	415, 729
Mitchell, H. H., J. R. Beadles and W. W. Braman . . . .	511
Moncrieff, A., and R. Hutchison . . . .	638
Moniz, E. . . . .	21
Montgomery, H. . . . .	414
Moore, R. A. . . . .	483
Moore, S. . . . .	446
Moore, T. D. . . . .	571
Morgan, O. G., and J. M. Lees . . . .	322
Moritz, A. R. . . . .	482
Morrison, D. B., and T. P. Nash . . . .	511
Morse, R. W., L. G. Cole, R. E. Pound, C. L. Headland and W. G. Cole . . . .	118
Mroz, R. J., and H. W. Meyerding . . . .	295
Mullen and Gatewood . . . .	238
Murphy, C. . . . .	356
Murphy, W. P., and H. Brugsch . . . .	206
Naegeli, C. . . . .	385
Nash, T. P., and D. B. Morrison . . . .	511
Nittis, S. . . . .	145
Nordgren, R. . . . .	357
Norris, J. H., and F. L. Apperly . . . .	176
Novak, C., and K. Koff . . . .	266
Novak, E. . . . .	356
Ochsner, A. . . . .	570
Ochsner, E. H. . . . .	415
O'Connor, R. . . . .	668
O'Connor, V. J., and B. C. Corbus . . . .	415
Ormond, J. K. . . . .	759
Orr, H. W. . . . .	571
Osgood, R. B. . . . .	540
Otani, S., and P. Klemperer . . . .	482
Paff, G. H. . . . .	483
Parmenter, F. J., A. G. Foord and C. S. Leutenegger . . . .	759
Partridge, J. . . . .	267
Paschkis, R., and S. Brügel . . . .	414
Patey, D. H. . . . .	482
Pedley, F. G. . . . .	729
Pels, I. R., and D. I. Macht . . . .	758
Pemberton, R. . . . .	207
Perdrau, J. R. . . . .	482
Pesroso, G. . . . .	415
Petow, H., and E. Wittkower . . . .	541
Petroff, S. A., and W. Steenken, Junior . . . .	384
Pfahler, G. E., and J. H. Vastine . . . .	447
Phemister, D. B., A. Brunschwig and L. Day . . . .	295
Pignot, J., and E. Sergeant . . . .	540
Poe, D. L. . . . .	322
Polak, J. O., and V. Mazzola . . . .	267
Pollock, L. J., and L. Davis . . . .	145

Abstracts from Current Medical Literature—Continued.	Page.
Authors—Continued.	
Pound, R. E., L. G. Cole, R. W. Morse, C. L. Headland and W. G. Cole . . . .	118
Pratt, J. P., E. Allen <i>et alii</i> . . . .	145
Predtechensky, S. N. . . . .	728
Preisel, R., and R. Wagner . . . .	206
Ptaszek, L., A. W. Elmer and M. Scheps . . . .	571
Rabinowitch, I. M. . . . .	206
Radu, E., and S. Ackerman . . . .	119
Rist, E. . . . .	207
Rivkin, H., M. R. Mayers and F. Krasnow . . . .	729
Robertson, O. H., and M. A. Cornwell . . . .	53
Roeder, C. A. . . . .	238
Roger, H. . . . .	357
And A. Cremieux . . . .	357
Rogoff, J. M. . . . .	541
Rollier, A. . . . .	295
Ronnenfeld, E. . . . .	610
Rosenthal, N. . . . .	323
Röth, A., and B. Friedman . . . .	322
Ruggles, H. E. . . . .	446
Rupp, V. R., V. Toscani and W. S. McClellan . . . .	177
Russell, A. I. H. . . . .	53
Russell, W. R.—	
And H. G. Garland . . . .	699
And H. H. Hyland . . . .	699
Saito, Kamikawa and Yanagizawa . . . .	238
Salle, A. J. . . . .	729
Salomonsen, L. . . . .	511
Sampson, J. A. . . . .	266
Sansum, W. D., and P. A. Gray . . . .	20
Savatard, L. . . . .	758
Savill, A. . . . .	447
Scheps, M., A. W. Elmer and L. Ptaszek . . . .	571
Schlossmann, H. . . . .	176
Schmidt, G. . . . .	610
Seldler, F., and E. J. Berkeheiser . . . .	639
Semmes, M. F., and N. W. Larkum . . . .	52
Seng, M. I. . . . .	759
Sergeant, E., and J. Pignot . . . .	540
Shapiro, E. Z. . . . .	89
Simpson, S. L. . . . .	639
And R. Hutchison . . . .	294
Sisk, J. N. . . . .	758
Slesinger, E. C. . . . .	571
Smith, J. . . . .	638
Smith, N. R. . . . .	483
Smith, S. W., and R. Curle . . . .	414
Souques, Crouzon and I. Bertrand . . . .	357
Sourdille, M. . . . .	323
Speidel, C. C., and H. E. Jordan . . . .	483
Spiers, H. W. . . . .	295
Stanojević, L. . . . .	357
Steenken, W., Junior, and S. A. Petroff . . . .	384
Stewart, C. P., D. M. Lyon and D. M. Dunlop . . . .	698
Stewart, D., and V. Lambert . . . .	323
Stewart, M. J., and E. M. Hickman . . . .	482
Stieglitz, E. J. . . . .	611
Still, G. F. . . . .	294
Stokes, J. H., T. H. Miller and H. Beerman . . . .	758
Stolzenberg, H. . . . .	610
Sturgis, C. C., and R. Isaacs . . . .	356
Sussmann, M. L. . . . .	119

	Page.		Page.		Page.
<b>Abstracts from Current Medical Literature—Continued.</b>		<b>Abstracts from Current Medical Literature—Continued.</b>		<b>Abstracts from Current Medical Literature—Continued.</b>	
<b>Authors—Continued.</b>		<b>Bacteriology and Immunology</b>		<b>Gynaecology—Continued.</b>	
Suzman, M. M., and C. C.		—Continued.		Thrombosis and Embolism .. 610	
Ungley .. 699		Milk, Acid-Fast Bacteria in .. 728		Hygiene .. 53, 385, 729	
Taptas, M. N. .. 699		Platelets, Direct Counting of .. 728		Asthenobiosis Theory, The .. 729	
Thomas, B. A. .. 415		Blood .. 728		Carbon Monoxide and the	
Thompson, W. O., and F. M.		Pneumococcus Vaccine, The		Fragility of the Red Blood	
Thurmon .. 541		Production of Immunity		Cells .. 729	
Throne, B., and T. N. Graham		with .. 728		Constitution in Health and	
Thurmon, F. M., and W. O.		Poliomyelitis .. 384		Illness .. 385	
Thompson .. 541		The Colloidal Gold Test in		Electric Shock .. 385	
Tinklepaugh, O. L. .. 145		Experimental .. 52		Heating of Buildings, The .. 385	
Toscani, V., W. S. McClellan		Treponema Pallidum, The		Hygiene, Industrial, under	
and V. R. Rupp .. 177		Preparation of Antigens		Tropical Conditions .. 53	
Twort, C. C. .. 52		from Cultures of .. 384		Hypertension, Arterial, in	
Taylor, F. A. .. 447		Tubercle Bacilli in Sputum .. 728		Industry .. 385	
Ungley, C. C., and M. M.		Typhoid Agglutinin Produc-		Illness Among Wage-Earning	
Suzman .. 699		tion .. 52		Adults .. 729	
Vail, D. T., Junior, and G. J.		Yellow Fever Virus, The		Lead, The Effects of, on the	
Heuer .. 668		Filtrability of .. 52		Vision .. 729	
Van Amstel, J., A. B. Wads-		Biological Chemistry .. 177, 511		Pneumococci, Resistance to	
worth and M. W. Brigham		Cholesterol Content, Blood .. 177		Pathogenic .. 53	
Vastine, J. H., and G. E.		Copper Content of Infant		Siliceous Spicules and Animal	
Pfahler .. 447		Livers .. 511		Tissues .. 729	
Verhoeff, F. H. .. 668		Cystine Deficiency in the Diet		Tuberculosis, Clinical and	
Vernon, H. M. .. 385		and the Growth of Hair .. 511		Pathological Factors Under-	
Violle, P. L. .. 510		Insulin and Epinephrine and		lying Mortality Rates from	
Vipond, A. E. .. 294		Blood Acetone .. 511		Water, The Bacteriological	
Volk, R. .. 446		Kidney Function, The Effect		Examination of .. 729	
von Lichtenberg, A. .. 118		of Meat Diet on the .. 177		Medicine .. 206, 540	
Wadsworth, A. B., J. E. Van		Metabolism—		Addison's Disease .. 541	
Amstel and M. W. Brigham		Of Calcium and Phosphorus,		Allergic Joint, The .. 207	
Wagner, R., and R. Preisel .. 206		The Effect of a Meat Diet		Arthritis .. 207	
Walters, W. .. 540		on .. 177		Chronic .. 540	
Walton, A. J. .. 571		Vitamin B and Carbo-		Asthma, Treatment of Bron-	
Warner, E. C. .. 294		hydrate .. 177		chial .. 541	
And A. C. Hampson .. 638		Phosphatase, Plasma .. 511		Basal Metabolic Rate, the	
Wartenberg, R. .. 206		Phosphorus, Variations in the		Clinical Application of the	
Watkins, R. E., and W. M.		Inorganic Blood .. 511		Colon, The Spastic .. 540	
Wilson .. 610		Dermatology .. 88, 414, 758		Dentures, Electrolysis from	
White, R. P. .. 88		Acrodermatitis Continua and		Gall Bladder Diseases, Diet	
Wiesener, B. P. .. 206		Psoriasis Pustulosa .. 414		in .. 207	
Williams, C. M. .. 758		"Bismarsen" in the Treatment		Gastrectomy, Studies After .. 540	
Williams, E. W. .. 669		of Syphilis .. 758		Hæmorrhages, Gastro-Duo-	
Wilson, G. H. .. 144		Bismuth, The Excretion of .. 88		denal .. 541	
Wilson, S. A. K. .. 699		Carcinoma, Intraepidermal, of		Hypertension .. 540	
Wilson, W. M., and R. E.		the Skin .. 758		Lipodystrophy following In-	
Watkins .. 610		Dermatitis due to Sensitiza-		sulin Injections .. 206	
Windle, W. F. .. 145		tion to Contact Substances .. 758		Liver Extract, Treatment with	
Withers, S. .. 20		Eczema .. 414		Malignant Disease of the	
Wittkower, E., and H. Petow		Treatment of Infantile .. 88		Lungs and Pleuræ .. 540	
Wolff, J. .. 322		Erythema Annulare, Centri-		Metabolism, Low Basal, with-	
Wolfe, J. B., and S. Bellet .. 356		fugal .. 414		out Myxœdema .. 541	
Wood, C., S. Lepovsky and H.		Granuloma, Coccidioidal .. 88		Morphinism, Treatment of .. 206	
M. Evans .. 177		Larva Migrans .. 414		Paralysis, Diagnosis of Facial	
Wood, F. C., and J. E. Cottrell		Pemphigus and Other Dermo-		206	
Wright, H. D., and F. J. F.		toses, Phytopharmacology of		Pneumothorax .. 540	
Barrington .. 759		Purpura Annularis Telangiect-		Artificial .. 207	
Wu, C., and C. K. Hsieh .. 446		odes .. 414		Testis, The Senile .. 206	
Wychgel, J. N. .. 385		Sensitization and the Diag-		Therapy, Non-Specific .. 207	
Yanagizawa, Saito and Kami-		nosis of the Traumatic		Morbid Anatomy .. 144, 482	
kawa .. 238		Dermatoses .. 88		Arteritis, Syphilitic Coronary	
Young, C. A. .. 668		Tinea Barbae Accompanied by		482	
Zoeller, A., and R. D'Aunoy .. 238		Dermatophytia .. 758		Charcot's Joints, Pathology of	
<b>Bacteriology and Immunology</b>		Verruca Plantaris .. 758		Hypertrophic .. 482	
52, 384, 728		Gynaecology .. 266, 610		Melanosis Coli .. 482	
Antitetanic Serum, The Pro-		Carcinoma, Primary, of the		Nephrosclerosis, Malignant .. 482	
duction of Potent .. 728		Fallopian Tubes .. 610		Pericarditis, Rheumatic, with	
Bacille Calmette-Guérin, Re-		Cervix Uteri, Age Changes in		Polypoid Formations .. 144	
sistance of Guinea-Pigs Vac-		the .. 610		Peripheral Nerves and	
cinated with .. 384		Contraception, Methods of .. 610		Squamous Epithelioma .. 482	
Bacillus Typhosus in Vaccines		Endometriosis, Post-Salpin-		Psittacosis .. 144	
384		gectomy .. 266		Schlider's Disease .. 482	
Bacteriophage, Filtration of .. 52		Metabolism, Basal, and		Tuberculosis of the Stomach	
Brucella Abortus .. 52		Fibroids .. 610		144	
Eosinophilia, Persistent .. 384		Mole, Hydatidiform, and		Tumours—	
Flagella and Capsules, A		Chorionepithelioma .. 266		Of the Urachus .. 483	
Method of Staining Bacter-		Pruritus, Treatment of .. 610		Mixed, of the Salivary	
rial .. 52		Radium Treatment, Local		Glands .. 482	
Lymphadenoma, The Ætiology		Sequelæ After .. 266		Vaccine Lymph, Effect of, on	
of .. 52				the Central Nervous System	
				of the Monkey .. 144	



	Page.		Page.		Page.
Abstracts from Current Medical Literature—Continued.		Abstracts from Current Medical Literature—Continued.		Abstracts from Current Medical Literature—Continued.	
Morphology . . . . .	145, 483	Ophthalmology—Continued.		Pædiatrics—Continued.	
Behaviour Reactions and Development of the Spinal Cord . . . . .	145	Argyrosis Corneæ . . . . .	322	Hypertension, Primary Arterial, in Childhood . . . . .	638
Brain of the Rhesus Monkey . . . . .	145	Atrophy, Operation in Hereditary Optic . . . . .	668	Measles Prophylaxis in Infants . . . . .	294
Capillaries of Skeletal Muscles, The . . . . .	483	Bee Sting of the Cornea . . . . .	668	Pertussis, Neurological Complications of . . . . .	294
Decerebrate Animal, The Reflex Activities of a . . . . .	145	Denig Transplant, The, in Trachoma . . . . .	322	Phenobarbital, Use of, in Infant Feeding . . . . .	638
Discs, The Intervertebral . . . . .	483	Entropion, Treatment of Spastic . . . . .	668	Poliomyelitis, Second Attacks of . . . . .	294
Erythrocytes, A Surface Structure in Normal Nucleated Hemihypertrophy, Total Glomerular Counts in . . . . .	483	Exophthalmos, Unilateral . . . . .	322	Tonsils, The, and Naso-Pharyngeal Epidemics . . . . .	638
Hypophysis, The Pars Nervosa of the Bovine . . . . .	145	Glaucoma, Iridenceleisis and Iridectomy for . . . . .	322	Physical Therapy . . . . .	119, 446
Macrophages of Living Amphibian Larvæ . . . . .	483	Kayser-Fleischer Corneal Ring . . . . .	322	Angina Pectoris . . . . .	119
Monocytes of the Blood and Tissue Macrophages . . . . .	483	Narcosis, Rectal, in Ophthalmic Surgery . . . . .	322	Cancer—	
Morphogenesis in the Anterior Portion of the Spinal Cord . . . . .	483	Retinitis Pigmentosa, Pathology of . . . . .	668	And Radium in South India . . . . .	119
Ossification, Endochondral . . . . .	145	Transplantations, Ocular Tendon . . . . .	668	Of the Uterine Cervix, Radiation and . . . . .	447
Ova, A Study of Human, from Large Follicles . . . . .	145	Orthopædic Surgery . . . . .	295, 639	Goltre, Röntgen Therapy in . . . . .	447
Splenectomy in the Salamander, Triturus Viridescens . . . . .	483	Arthritis and Arthroplasty, Chronic Infectious . . . . .	295	Lupus, Light Therapy in . . . . .	446
Utriculo-Endolymphatic Valve, The . . . . .	145	Cordotomy and Relief of Pain Dislocations, Non-Traumatic, of the Atlanto-Axial Joint . . . . .	639	Pertussis, Radiotherapy in . . . . .	119
Vaginal Plug, Occurrence of, in a Chimpanzee . . . . .	145	Epiphyses and Short Bones, Streptococcal Infections of the . . . . .	295	Pruritus and Eczema of Vulva and Anus . . . . .	447
Neurology . . . . .	21, 357, 699	Fractured Clavicles, Spring Back Brace for . . . . .	295	Radiation and Arthritis . . . . .	119
Artery, The Anterior Cerebral, and its Syndromes . . . . .	21	Genu Recurvatum, Paralytic Oscillometry in Peripheral Vascular Disease . . . . .	639	Physiology . . . . .	176, 510
Benedikt, Syndrome of . . . . .	357	Osteomalacia, Lunate . . . . .	639	Acidity, Regulation of Gastric Capillary Blood Pressure in the Human Skin . . . . .	176
Cardiac Disease, Mental Changes in . . . . .	699	Sympathectomy, Lumbar, after Anterior Poliomyelitis . . . . .	639	Hydration of the Tissues, The, and the Role of the Liver in the Metabolism of Water . . . . .	510
Chorea . . . . .	357	Tendovaginitis, Stenosing . . . . .	295	Placenta, The Permeability of the, for Glucose . . . . .	176
Degeneration, Subacute Combined, of the Cord and Liver Therapy . . . . .	699	Tuberculosis—		Skin, Reactions of the Vessels of the Human, to Cold . . . . .	176
Disease, Nervous and Mental, Among Ex-Service Men . . . . .	21	Of the Joints of the Lower Extremities . . . . .	639	Radiology . . . . .	118, 446
Hysteria, The Study of . . . . .	699	Suppurative, of Joints . . . . .	639	Cholecystography . . . . .	118, 446
Insanity, Indian Hemp . . . . .	21	Surgical, of the Lower Extremity . . . . .	295	Dwarfism and Disordered Epiphyses . . . . .	446
Lamarckian Experiment, Second Report on a . . . . .	21	Oto-Rhino-Laryngology . . . . .	322, 669	Effusion of the Thorax . . . . .	446
Myopathies, Myoclonic . . . . .	21	Adenoidism in Italy . . . . .	669	Infection, Cross, of the Lung . . . . .	118
Neuralgia, Trigeminal . . . . .	699	Agranulocytosis . . . . .	323	Pyelography, Intravenous . . . . .	118
Paralysis—		Cholesteatoma, The Pathogeny of Aural . . . . .	669	Spondylitis Traumatica Tarda . . . . .	118
General, and Tabes in the Balkan States . . . . .	357	Ethmoiditis, Treatment of . . . . .	669	Tuberculosis, Intestinal . . . . .	446
Landry's . . . . .	21	Ganglion, The Spheno-Palatine . . . . .	323	Surgery . . . . .	238, 570
Polyneuritis—		Granuloma of the Larynx . . . . .	669	Actinomycosis of the Abdomen . . . . .	571
Chronic Progressive . . . . .	699	Ionization, Zinc, of the Ethmoids . . . . .	669	Amputation Stump, Conical . . . . .	238
Progressive Hypertrophic . . . . .	699	Lung, Suppurative Diseases of the . . . . .	322	Anæsthesia, Spinal . . . . .	570
Sciatica . . . . .	357	Middle Ear, The, and Its Vascular Anatomy . . . . .	669	Appendicectomy, A Transverse Incision for . . . . .	239
Spasm, Bilateral Facial . . . . .	357	Otosclerosis, The Surgical Treatment of . . . . .	323	Astrocytomata, Cerebellar . . . . .	570
Obstetrics . . . . .	267, 610	Paralysis, Recurrent Laryngeal . . . . .	669	Bronchiectasis . . . . .	570
Anæmia of Pregnancy, The "Physiological" . . . . .	267	Swim-Bladder, The, and Weberian Ossicles in Fishes . . . . .	669	Carbuncle of the Kidney . . . . .	571
Embolus, Post-Operative Obstetric: Its Incidence, Cause and Prevention . . . . .	267	Throat, Milk-Borne Sore . . . . .	323	Embolism of the Lungs, The Operative Treatment of . . . . .	239
Gastric Juice, The, in Pregnancy . . . . .	267	Tonsillectomy, Complications of . . . . .	323	Empyema . . . . .	238
Hæmorrhage, Post Partum . . . . .	611	Pædiatrics . . . . .	294, 638	Ileus, Treatment of Paralytic . . . . .	571
Icterus Neonatorum . . . . .	610	Anæmia and Liver Therapy in Infancy . . . . .	638	Maggots, Wounds and . . . . .	571
Infection, Puerperal . . . . .	267	Banti's Disease, Advanced . . . . .	294	Obstruction, Acute Intestinal . . . . .	570
Landry's Paralysis and Pregnancy . . . . .	267	Chorea, Treatment of, by Milk Injection . . . . .	294	Rejuvenation . . . . .	571
Nephritis in Pregnancy . . . . .	611	Cirrhosis of the Liver . . . . .	294	Sarcoma of the Stomach . . . . .	238
Placenta Prævia . . . . .	611	Enuresis, the Psychiatric Aspects of . . . . .	638	Sympathectomy, Periarterial . . . . .	239
Still-Birth Due to Intracranial Injury . . . . .	267	Hæmoglobinuria in the New-Born . . . . .	638	Tuberculosis of the Kidney . . . . .	238
Ophthalmology . . . . .	322, 668			Visualization, Blood Vessel . . . . .	238
Arachnoiditis, Chronic Cisternal . . . . .	668			Therapeutics . . . . .	20, 356, 698

	Page.		Page.		Page.
Abstracts from Current Medical Literature— <i>Continued.</i>		Anæmia— <i>Continued.</i>		Association of Physicians of Australasia (including New Zealand) (Leading Article) ..	243
Therapeutics— <i>Continued.</i>		Sapremia and Aplastic ..	180	Asthma (Leading Article) ..	479
Septicæmia ..	20	Submucous Fibromyoma and Secondary ..	179	Ataxia, Friedreich's ..	180
Tachycardia, Auricular Paroxysmal, and Calcium ..	356	Anæsthesia—		Auditory Meatus, A Tick in the, by B. Foster ..	15
Tumours, Malignant, of the Mouth and Throat ..	356	"Avertin" Rectal: A Further Report, by E. M. Balaam ..	745	Australian and New Zealand Journal of Surgery (note) ..	754
Urology ..	89, 414, 758	Death Under: Lesions in the Medulla and Possible Status Thymico-Lymphaticus, by G. A. Hardwicke and O. Latham ..	534	Australian Medical Boards, Proceedings of the—	
Anæsthesia, Spinal, for Genito-Urinary Operations ..	415	For Operations on the Base of the Brain, by G. Brown ..	258	New South Wales ..	123
Arteries, Valves in Penile ..	759	Local—		Queensland ..	124
Arteriography of the Kidneys ..	414	By R. A. H. Fulton ..	425	Tasmania ..	334, 769
Bacteriæmia in Urethral Operations ..	759	In General Surgery, by C. E. Corlette ..	157	Victoria ..	123, 333, 460, 520
Calculi, Urethral ..	89	"Sodium Amytal" in, by R. I. Furber ..	744	Australasian Medical Congress (British Medical Association) ..	18, 115, 421, 487, 732
Carcinoma, Primary, of the Ureter ..	89	Some Personal Experiences with "Avertin," by H. M. Owen ..	752	Australasian Medical Publishing Company Limited ..	61
Cystitis Emphysematosa ..	415	Anæsthetic—		Autointoxication (Intestinal Toxæmia) Biologically Considered, by A. Bassler (rev.) ..	566
Gonococcus Bouillon Filtrate ..	415	Experiences with "Sodium Amytal" as a Basal, by G. A. Hardwicke ..	750	"Avertin"—	
Horseshoe Kidney, Pathological Changes in ..	759	The Selection of an, by L. Doyle ..	194	Anæsthesia, Some Personal Experiences with, by H. M. Owen ..	752
Hydronephrosis ..	89	Analytical Department—		In Surgery and Obstetrics, by C. Coghlan ..	737
Kidney, Shield-Shaped ..	415	"Vi-Lactogen" ..	172	Rectal Anæsthesia: A Further Report, by E. M. Balaam ..	745
Pelvis, Double Renal, in Longitudinal Axis ..	759	"VitaB" ..	478		
Prostatic Hypertrophy, X Ray Treatment of ..	759	Anatomy—		B	
Prostatism, Blood Pressure in ..	759	Act ..	732	Bach, F. ..	538
Pyelitis ..	759	And Physiology, Course of Instruction in ..	302	Back, Diagnosis of Pain in the, by C. W. B. Littlejohn ..	670
Pyelonephritis, Gonococcal ..	759	Applied to Surgery, by L. B. Rawling (rev.) ..	753	Badham, C. ..	547
Renal Functional Tests ..	415	Anderson, A. S. ..	391, 392	Bage, Charles, Death of ..	181
Rupture of the Kidney ..	89	Anderson, A. V. M. ..	183, 392	Bailey, H. (Emergency Surgery) (rev.) ..	633
Sparteine Sulphate in Suppression of Urine ..	415	Anderson, E. ..	391, 392	Baker Institute, Collected Papers of the (note) ..	606
Stricture, Ureteric ..	414	Anderson-Stuart, B. P. ..	149	Balaam, E. M.—	
Sympathectomy, Renal ..	415	Andrews, G. C. (Diseases of the Skin (rev.) ..	754	"Avertin" Rectal Anæsthesia: A Further Report ..	745
Syphiloma, Vegetative, of the Bladder ..	758	Aneurysm, Intracranial Arterio-Venous, by R. C. Winn ..	379	Balfour, Andrew, Death of ..	615
Ureterectomy, Secondary, for Pain ..	415	Aneurysms, "Congenital," of the Cerebral Arteries ..	51	Bargen, J. A. ..	293
Ureteric Surgery, Plastic ..	759	Anthropology, An Introduction to Physical, by E. P. Stibbe (rev.) ..	202	Barrett, J. W. ..	391
Vesiculitis and Prostatitis ..	89	Antivenine, Treatment with, Twenty-Four Hours After a Bite by a Tiger Snake, by H. T. Tisdall and J. E. Sewell ..	604	Post-Graduate Work ..	300
Achard, C. (The Œdema of Bright's Disease) (rev.) ..	663	Appendicitis, The Ochsner-Sherren Delayed Treatment of Neglected, by P. D. Braddon ..	660	Trachoma ..	97, 458
Acromegaly ..	270	Areola, A Note on the Sensory Characters of the Nipple and, by F. Wood Jones and J. B. Turner ..	778	Barrington, F. J. F. ..	19
Addison's Disease ..	613	Armit, Death of H. W. ..	62	Barry, B.—	
Address, An—		Armour, J. C. ..	412	Professional Advertisement ..	797
By G. Bell ..	395	Army Medical Services, Some Notes on the Development of the, by F. K. Norris ..	308	Barry, K. L.—	
By R. G. McPhee ..	33	Arsenic, Poisoning by, by J. K. D. Mackenzie ..	317	Professional Advertisement ..	616
Addresses, Essays and, by A Surgeon (rev.) ..	113	Arsenic, Unusual Poisoning by, by A. Palmer ..	31	Basophilia, Punctate: A Method for Easy Demonstration, by W. T. Nelson ..	310
Adelaide Hospital ..	613	Arthritis—		Bassler, A. (Intestinal Toxæmia Biologically Considered) (rev.) ..	566
Adenitis, Tuberculous ..	456	Chronic, The Treatment of, by A. H. Douthwaite (rev.) ..	753	Bayly, A. W., Editor (What We Drink, by Various Authors) (rev.) ..	724
Adenoma Sebaceum ..	29	Infective ..	797	Beard, R. ..	26
Adcy, J. K.—		Rheumatoid, Suggested Surgical Treatment of Bone in, by J. F. Mackenzie ..	441	Bell, G. ..	30, 154, 423, 513
The War and Sir Neville Howse's Part Therein ..	215	Septic ..	456	An Address ..	395
Advertisement, Professional—		Aspinall, A. ..	154, 360, 706	And A. H. Tebbutt—	
By B. Barry ..	797	The War and Sir Neville Howse's Part Therein ..	184	Syphilis of the Stomach Simulating Carcinoma ..	81
By K. L. Barry ..	616			Bell, W. B. (Some Aspects of the Cancer Problem) (rev.) ..	786
By H. B. Bruce ..	707			Belt, T. H. ..	354
By C. H. E. Lawes ..	707			Benjafield, V. ..	151, 360
Agar, W. E. ..	297			Bennett, A. E. ..	63
Ahern, E. D. ..	706, 796			Beresford, E. H. ..	174
Ainslie, J. P. ..	733			Bernard, E. ..	581
Aldridge, F. C. ..	667				
Alexandrescu, G., and S. Voronoff (Testicular Grafting from Ape to Man) (rev.) ..	84				
Allan, M. ..	576				
Allport, R. M. ..	149, 152				
Amaurosis, Acute, During Pregnancy, without Signs of Toxæmia, by B. H. Swift and A. L. Tostevin ..	632				
Amies, A., Teeth Extraction ..	458				
Amputation, Interscapulo-Thoracic ..	544				
Anæmia—					
Cure in Pernicious ..	383				
Pernicious ..	298				

	Page.		Page.		Page.
Betts, L. O. . . . .	762	British Medical Association, The—		British Medical Association, The	
And R. L. T. Grant—		Federal Committee—Continued.		—Continued.	
Complete Obstructive Jaundice		Australasian Medical Congress (British Medical Association) . . . . .	487	South Australian Branch—	
Due to Obliteration of the Common Bile Duct in a Child . . . . .	200	Ethical Matters, Model Rules		Meetings—	
Bibliography, The Medical Writer's (Leading Article) . . . . .	507	Governing Procedure in . . . . .	487	Scientific . . . . .	25, 329, 613, 761
Binz, A. . . . .	382	Federal Council . . . . .	486	Sections—	
Births, Marriages and Deaths—		Financial Statement . . . . .	486	Clinical Medicine . . . . .	613
Death—		Health Research Council . . . . .	488	Victorian Branch—	
Douglas, John Campbell . . . . .	124	Insulin, Duty on . . . . .	488	Appointments . . . . .	57
Bishop, W. B. S.—		Medical Service, Australian		Armit, H. W., Death of . . . . .	62
The Estimation of Lactic Acid in Blood . . . . .	219	Inland Mission Frontier . . . . .	487	Associates . . . . .	57
Bismuth, The Use of, in the Treatment of Syphilis . . . . .	726	Medical Services to Natives in Central Australia . . . . .	487	Australasian Medical Publishing Company, Limited . . . . .	61
Black Disease of Sheep . . . . .	116	Minutes . . . . .	486	British Medical Agency of Victoria . . . . .	66
Blackburn, C. B. . . . .	579	Office Bearers, Appointment of		B.M.A. House, London . . . . .	66
Diagnosis of Diabetes Mellitus		Poliomyelitis . . . . .	487	British Medical Insurance Company of Victoria, Limited . . . . .	66
Lymphosarcoma of the Neck . . . . .	565	Registration in the United Kingdom of Australian Graduates . . . . .	488	Council Meetings . . . . .	56
Blair, J. E. . . . .	636	Repatriation Department . . . . .	487	Diploma Courses at the University . . . . .	62
Bland, P. B. . . . .	788	Representatives . . . . .	486	Election . . . . .	56
Blood—		Scholarships and Grants, British Medical Association		Ethics Subcommittee . . . . .	57
The Clinical Importance of Certain Chemical Constituents of the, by F. S. Hansman . . . . .	560	Subscription from Overseas Branches . . . . .	486	Federal Committee . . . . .	61
The Estimation of Lactic Acid in, by W. B. S. Bishop . . . . .	219	New South Wales Branch—		General Practitioners' Section . . . . .	62
Transfusion, The Transmission of Syphilis by . . . . .	757	Address, Incoming President's		History, Early Medical . . . . .	62
Bodansky, A. . . . .	636	Advertisement, By-Laws . . . . .	422	Hospital Subcommittee . . . . .	61
Bolliger, A., and M. S. S. Earlam, The Excretion of Sodium Thio-sulphate during Uncomplicated Human Pregnancy . . . . .	427	Advertising . . . . .	513	Indent Agency . . . . .	63
Bone, Suggested Surgical Treatment of, in Rheumatoid Arthritis, by J. F. Mackenzie	441	Agent or Canvasser, Employment of . . . . .	514	Induction of President . . . . .	66
Books Received . . . . .	32, 98, 156, 186, 218, 274, 334, 364, 394, 426, 460, 490, 520, 590, 648, 677, 708, 770, 798	Annual Report of the Council		Library Subcommittee . . . . .	60
Bostock, J. . . . .	298, 329	Associations of Members, Affiliated Local . . . . .	419	Medico-Political Committee . . . . .	59
Diagnosis of Minor Mental Invalidism . . . . .	358	Australasian Medical Congress (British Medical Association) . . . . .	421	Financial Statements . . . . .	330
Bowman, R. McD. . . . .	181	Council . . . . .	419	Meetings—	
Brachial Plexus, Complete Lesion of Left . . . . .	584	Delegates, Annual Meeting of		Annual . . . . .	56
Braddon, P. D.—		Ethical Matters, Procedure in . . . . .	422, 515	Medico-Political . . . . .	330
The Ochsner-Sherren Delayed Treatment of Neglected Appendicitis . . . . .	660	Federal Committee . . . . .	421	Financial Statements . . . . .	330
Bradley, G. G., and P. E. W. Smith, Tumour of the Semilunar (Gasserian) Ganglion: Neurocytoma . . . . .	80	Financial Statements . . . . .	423	Scientific . . . . .	297, 391, 575, 674
Brain—		House, The New . . . . .	421	Melbourne Permanent Committee for Post-Graduate Work . . . . .	66
Anæsthesia for Operations on the Base of the, by G. Brown	258	Induction of President . . . . .	423	Membership Roll . . . . .	57
Branch Councils (Leading Article) . . . . .	411	Jubilee of the . . . . .	421	Organization Subcommittee . . . . .	58
Branch Meetings (Leading Article) . . . . .	263	Lectures, British Medical Association . . . . .	420	Presentations . . . . .	62
Breast, Prolapse of the . . . . .	143	Legislation . . . . .	422	President's Address . . . . .	66
Bridge, R. . . . .	29	Library . . . . .	419	Report, Annual, of the Council	56
Bright's Disease, The (Edema of, by C. Achard (rev.) . . . . .	663	Medical Journal of Australia, The . . . . .	421	Science Subcommittee . . . . .	60
Brisbane Hospital . . . . .	297	Meetings . . . . .	418	Secretary, Honorary . . . . .	57
British Journal of Physical Medicine, The . . . . .	637	Annual . . . . .	418	Sections—	
British Medical Agency of Victoria . . . . .	66	Medico-Political . . . . .	513	Ophthalmological . . . . .	391
British Medical Association, The		Scientific . . . . .	27, 93, 147, 179, 452, 544	Pathological Library . . . . .	392
Branch Councils (Leading Article) . . . . .	411	Membership . . . . .	418	Reports of . . . . .	64
Branch Meetings (Leading Article) . . . . .	263	Office Bearers, Election of . . . . .	423	Social and Personal . . . . .	62
Branch Subscriptions . . . . .	735	Post-Graduate Work . . . . .	420	Subcommittees—	
Federal Committee . . . . .	486	Practice, Contract . . . . .	421	Council . . . . .	56
		Public Hospitals Act, 1929 . . . . .	422	Special . . . . .	57
		Representatives . . . . .	418	Subdivisions, Reports of . . . . .	63
		Sections—		Syme, George Adlington . . . . .	61
		For the Study of Special Branches of Medical Knowledge . . . . .	420	Western Australian Branch—	
		Neurology and Psychiatry . . . . .	452	Agenda Papers . . . . .	735
		Workers' Compensation Act, 1926-29 . . . . .	421, 514	Annual Meeting . . . . .	732
		Nominations and Elections 94, 121, 149, 211, 242, 269, 299, 331, 424, 488, 515, 576, 614, 735		Auditors, Election of . . . . .	733
		Queensland Branch—		Benevolent Fund, Medical . . . . .	733
		Meetings—		Financial Statements . . . . .	732, 734
		Scientific . . . . .	91, 297, 327, 645, 795, 796	Honorary Staffs of Public Hospitals . . . . .	735
		Sections—		Librarian's Report . . . . .	733
		Obstetrical . . . . .	645	Lodge Agreement, Model . . . . .	735
				Mental Disorder, Ætiological Factors in . . . . .	733
				Parking of Motor Cars . . . . .	735
				Post-Graduate Work Committee . . . . .	733
				Report, Annual, and President's Address—	
				Anatomy Act . . . . .	732
				Annual Dinner . . . . .	732
				Auditors . . . . .	733



	Page.		Page.		Page.
British Medical Association, The		C		Cherry, T.—	
—Continued.		Cabot, R. C. (Physical Diagnosis,		Cancer and Tuberculosis ..	275, 297
Western Australian Branch—Con-		Tenth Edition) (rev.) ..	634	Chest, The, in Children (Annals	
tinued.		Cade, Frederick Joseph Richard,		of Roentgenology, Volume	
Australasian Medical Con-		Death of ..	677, 735	XII) (rev.) ..	566
gress (British Medical		Callan Park Mental Hospital ..	452	Children's Hospital, Melbourne ..	583
Association), 1932 ..	732	Calov, W. L.—		Chloroform, The Action of, by R.	
Council Meetings ..	732	Diagnosis of Malaria ..	54	W. Hornabrook ..	616
Council, London Election of		Sprue and Amœbic Dysentery ..	184	Chorea, Exophthalmic Goltre and	584
Members of ..	733	Cameron, D. A. ..	92	Christie, K.—	
Federal Committee ..	733	Cameron, G. ..	456	Head Injuries at Birth ..	336
Hospital Bill ..	732	Campbell, A. W. ..	93	Cinematograph Demonstrations ..	297
Library Committee ..	733	Campbell, D. (Handbook of Thera-		Claremont Hospital for the Insane	732
Lodge Agreement, Model ..	733	peutics) (rev.) ..	605	Claritor, The: A Device for	
Medical Benevolent Associa-		Campbell, K. ..	586	Removing Offensive Odours ..	114
tion of Western Australia	733	Canada, A Visit to ..	391	Clarke, B. L. W. ..	329
Medical Service to Farmers	733	Cancer—		Some Aspects of Radiation	
Meetings of Branch ..	732	And Public Health Authorities		Treatment ..	303, 327
Membership of Branch ..	732	(Leading Article) ..	291	Cleary, G. M. ..	151
Office Bearers ..	733	And Tuberculosis, by T. Cherry	275	Clement, D. P. ..	735
Parking of Cars ..	733	Conference, The Second Aus-		Climate and Fecundity ..	444
Post-Graduate Week ..	733	tralian, at Canberra ..	515	Clinical Society of the Hospital	
Resignation of Dr. Roberta		(Leading Article) ..	607	for Sick Children, Brisbane	455
Jull ..	732	Diathesis, Diagnosis of ..	22	Clinics, Medical, in London and	
Royal Australasian College		Of the Larynx, by St. C. Thom-		Vienna, by F. J. Niall ..	167
of Surgeons ..	733	son and L. Colledge (rev.) ..	410	Coates, A. E.—	
Workers' Compensation Act	732	Of the Lung and Other Intra-		Periarterial Sympathectomy: Its	
Royal Army Medical Corps ..	735	thoracic Tumours, by M.		Use in Ulcers, Gangrene and	
British Medical Insurance Com-		Davidson (rev.) ..	172	Other Conditions ..	339
pany of Victoria, Limited ..	66	Of the Rectum, Intestinal		Cœliac Disease and Congenital	
Broad Ligament, Early Endo-		Obstruction Due to Ring, by		Syphilis ..	455
metriotic Invasion of the, by		E. M. Fisher ..	47	Coghlan, C.—	
B. Dawson ..	350	Of the Stomach (Leading		"Avertin" in Surgery and	
Brockbank, E. M. (The Diagnosis		Article) ..	141	Obstetrics ..	737
and Treatment of Heart		Problem, Some Aspects of the,		Cohen, A. ..	149
Disease) (rev.) ..	694	by W. Blair Bell (rev.) ..	786	Cohen, B. C. ..	735
Brodie, R., and H. Lawrence,		Cannula, A, for the Transfusion		Cold, The Ætiology of the Common	320
Pityriasis Folliculorum		of Blood ..	545	Cole, G. E. ..	64, 215
(Demodex) ..	529	Carbuncle of the Kidney ..	569	Colledge, L., and St. C. Thomson	
Bronchiectasis ..	27	Carcinoma—		(Cancer of the Larynx) (rev.)	410
Bronchitis ..	586	Of the Oesophagus with Multi-		College of Surgeons of Australasia,	
Bronchopneumonia and Bilateral		ple Metastases, by D. B.		The [see Royal Australasian	
Empyema following Abortion	181	Rosenthal ..	79	College of Surgeons]	
Bronchoscopy in Post-Operative		Syphilis of the Stomach Simu-		Collier, F. W. D. ..	269
Pneumonia ..	321	lating, by G. Bell and A. H.		Renal Tuberculosis ..	254
Broom, R. (The Origin of the		Tebbutt ..	81	Collip, J. B. ..	508
Human Skeleton) (rev.) ..	664	Cardiac Failure ..	456	Colon, Surgery of the, and Vac-	
Brown, G. ..	763	Cardiac Rupture ..	174	cination ..	293
Anæsthesia for Operations on		By D. P. O'Brien ..	380	Colopecty, Gastro-Enterostomy and	796
the Base of the Brain ..	258	Cardiac Stimulation, Resuscitation		Colville, H. C. ..	66, 586
Brown, R. G. ..	328	by ..	86	Commission, Royal, on Public	
"Percein": The New Local		By D. Stewart ..	259	Hospitals in Queensland ..	94
Regional and Spinal Analgesic		Carotenæmia (Biochemical Notes),		Commonwealth Employees' Com-	
or Anæsthetic ..	598	by J. V. Duhig ..	260	pensation Act, 1930 ..	422, 614
The Treatment of Deafness by		Carp, L. ..	355	Compensation—	
the Zünd-Burguet Electro-		Carrington, W. L. ..	587	Act, Commonwealth Employees',	
Phonode Method ..	375	Carter, B. N. ..	445	1930 ..	422, 614
Tonsillectomy ..	261	Carvosso, A. B. ..	242	Workers' [see Workers' Com-	
Brown, R. K. Lee, Ureteral Stone	523	Case for Action, The, by I. H.		pensation]	
Brown, T. G. ..	412	Pearse and G. S. Williamson		Congress—	
Bruce, H. B.—		(rev.) ..	785	Australasian Medical (British	
Professional Advertisement ..	707	Case, J. T. (Annals of Roentgen-		Medical Association) [see	
Buckingham, R. E.—		ology, Volume XII: The Chest		Australasian]	
Fulminating Frontal Sinusitis		in Children) (rev.) ..	566	International, of Oto-Rhino-	
and Orbital Cellulitis ..	201	Catheter Fever ..	19	Laryngology ..	549
Buckmaster, S. M. ..	581	Cellulitis, Fulminating Frontal		The Next (Leading Article) ..	115
Bullmore, H. H.—		Sinusitis and Orbital, by R.		Consulting Hours, After, by C.	
A Case of Pellagra ..	783	E. Buckingham ..	201	Howard (rev.) ..	202
Bulteau, A.—		Cerebral Hæmorrhage, Diagnosis		Convalescence, Shorter, by J. K.	
Colles's Fracture ..	97	of, by A. Holmes & Court ..	760	McConnel (rev.) ..	352
Burnard, R. G. ..	613	Certificates of Death ..	271	Cook, C. ..	218
Burnet, F. M. ..	457	Chapman, C. L., and H. H. Schlink,		Leprosy ..	183
Bursa, Pseudocyst of Omental ..	30	The Treatment of Fibroids of		Coppleson, V. M. ..	148
Bursitis, Prepatellar ..	355	the Uterus ..	691	Diagnosis of Head Injuries ..	448
Burton, R. N., Teeth Extraction	301	Cherry, P. T. S. ..	25	Cordner, E. R. ..	675
Butler, A. G.—		The Treatment of Difficult		Corlette, C. E. ..	154
The War and Sir Neville		Labour in General Practice	12	Local Anæsthesia in General	
Howse's Part Therein ..	273			Surgery ..	157
Byrne, J. A. ..	262				

	Page.		Page.		Page.
Correspondence—		Correspondence—Continued.		Cumpston, J. H. L., Public Health	
Action of Chloroform, The, by		Tonsillectomy—Continued.		in Australia—Continued.	
R. W. Hornabrook . . . . .	616	By B. Foster . . . . .	272	Part II, The Second Period,	
Anterior Poliomyelitis, by W. K.		By W. K. Hughes . . . . .	489	1830-1850 . . . . .	591
Hughes . . . . .	768	By H. G. Mitchell . . . . .	489	Part III, Developments After	
Association of Physicians, An,		By A. L. Watson . . . . .	273	1850 . . . . .	679
by T. J. Henry . . . . .	489	Trachoma, by J. W. Barrett	97, 458	Current Comment—	
Branch Subscriptions, by A.		Treatment of Difficult Labour		Ætiology of the Common Cold,	
Morris . . . . .	735	in General Practice, The, by		The . . . . .	320
Colles's Fracture, by A. Bulteau	97	H. L. Kesteven . . . . .	243	Aims and Limitations of	
Dr. Chisholm Ross, by A.		Trichomonas Vaginalis—		Surgery . . . . .	666
MacCormick <i>et alii</i> . . . . .	31	By B. H. Swift . . . . .	519	Black Disease of Sheep . . . . .	116
Electro-Surgery of Tonsils, by		By E. A. Woodward . . . . .	361	Blood Transfusion and Syphilis	757
W. K. Hughes . . . . .	185	Union of Epiphyses, The—		British Journal of Physical	
Fees of Specialists, The—		By H. Flecker . . . . .	301	Medicine, The . . . . .	637
By "G.P." . . . . .	96	By A. Palmer . . . . .	31	Bronchoscopy in Post-Operative	
By "G.P. Secundus" . . . . .	271	Unusual Poisoning by Arsenic,		Pneumonia . . . . .	321
By A. B. K. Watkins . . . . .	184	by A. Palmer . . . . .	31	Carbuncle of the Kidney . . . . .	569
Fractures and Rheumatism, by		Venin for the Treatment of Epi-		Cardiac Rupture . . . . .	174
S. Pern . . . . .	549	lepsy, A, by F. A. Wood . . . . .	245	Catheter Fever . . . . .	19
Hospital Problem, The—		Vernes Test, The, as Applied		Climate and Fecundity . . . . .	444
By D. M. Embelton . . . . .	518	to Syphilis—		"Congenital" Aneurysms of the	
By T. Hamilton . . . . .	299	By A. E. Finckh . . . . .	458	Cerebral Arteries . . . . .	51
By E. S. Meyers . . . . .	184	By H. A. Woodruff . . . . .	589	Congenital Stenosis of the Duo-	
Infant Nutrition, by L. R.		Waldemar Haffkine, C.I.E., by		denum . . . . .	175
Scammell . . . . .	425	R. W. Hornabrook . . . . .	184	Cure in Pernicious Anæmia . . . . .	383
International Neurological Con-		War, The, and Sir Neville		Experimental Osteitis Fibrosa . . . . .	636
gress, by R. A. Noble . . . . .	244	Howse's Part Therein—		Gastric and Duodenal Ulcer and	
Irradiated Ergosterol, by F. S.		By J. K. Adey . . . . .	215	Glycosuria . . . . .	696
Hansman . . . . .	185	By A. Aspinall . . . . .	184	Gastric Syphilis . . . . .	697
Leprosy—		By A. G. Butler . . . . .	273	Harmful Effects of Irradiation	204
By C. Cook . . . . .	183	By R. M. Downes . . . . .	332	Hermaphroditism . . . . .	609
By E. H. Molesworth . . . . .	272	By R. Fowler . . . . .	246	Hypoglycæmia and the Islands	
Local Anæsthesia, by R. A. H.		By V. Hurley . . . . .	331	of Langerhans . . . . .	788
Fulton . . . . .	425	By H. E. Jackson . . . . .	333, 393	Immunity to Protozoal Diseases	608
Osteomyelitis, by A. C. F.		By F. A. Maguire . . . . .	216	Income Tax and Income Tax	
Halford . . . . .	458	By R. J. Millard . . . . .	217	Returns . . . . .	789
Pathology of Retinitis Pigmen-		By A. H. Moseley . . . . .	215	Intestinal Obstruction . . . . .	412
tosa, The, by J. C. Halliday . . . . .	677	By J. S. Purdy . . . . .	332	Intravenous Injections . . . . .	539
Pertussis, by I. Robertson . . . . .	244	By J. W. Springthorpe . . . . .	155, 393	Malnutrition . . . . .	568
Pigmentary Degeneration of the		Warning, A, by S. J. Woolnough	459	Neuro-Syphilis and Cardio-	
Retina and Sympathectomy,		Workers' Compensation, by R.		Vascular Syphilis . . . . .	538
by E. Temple Smith . . . . .	549	D. Davey . . . . .	299	Osteomyelitis . . . . .	292
Police Offences Amendment		Workers' Compensation Case, A,		Paroxysmal Tachycardia . . . . .	480
(Drugs) Act, 1927 (New		by E. S. Stokes . . . . .	459	Placental Hormones . . . . .	508
South Wales), by J. G. Hunter	360	Workers' Compensation Insur-		Prepatellar Bursitis . . . . .	355
Poliomyelitis—		ance Practice in New South		Progressive Polyneuritis . . . . .	237
By J. Macnamara . . . . .	589	Wales—		Prolapse of the Breast . . . . .	143
By N. D. Royle . . . . .	459	By H. L. Kesteven . . . . .	519	Pulmonary Abscess . . . . .	50
Post-Graduate Work, by J. W.		By J. R. Ryan . . . . .	424	Ramification in Spastic Para-	
Barrett . . . . .	300	Corrigendum . . . . .	246	lysis . . . . .	117
Professional Advertisement—		Costelloe, M. J. . . . .	64	Recurrence of Varicose Veins,	
By B. Barry . . . . .	797	Couch, J. K.—		The . . . . .	509
By K. L. Barry . . . . .	616	Diagnosis of Pregnancy . . . . .	99	Resuscitation by Cardiac Stimu-	
By H. B. Bruce . . . . .	707	Councils, Branch (Leading		lation . . . . .	86
By C. H. E. Lawes . . . . .	707	Article) . . . . .	411	Silicosis . . . . .	354
Pulmonary Tuberculosis in Chil-		Cox, L. B.—		Surgery of the Colon and Vac-	
dren—		The Origin of Sluder's or		cination . . . . .	293
By W. Evans . . . . .	97	Spheno-Palatine Neuralgia . . . . .	435	Thoracoplasty in Pulmonary	
By R. L. T. Grant . . . . .	245	Crabb, E. D. (Principles of Func-		Tuberculosis . . . . .	445
Scarlet Fever, by "Dickens" . . . . .	589, 707	tional Anatomy of the Rab-		Thrombosis and Embolism . . . . .	117
Scarlet Fever Immunization, by		bit) (rev.) . . . . .	664	Thymus Body, The . . . . .	264
F. Tidswell and S. W. G.		Craig, F. B. . . . .	93, 94, 418, 514	Toxicity of Vitamin D, The . . . . .	142
Ratcliff . . . . .	647	Craig, G. . . . .	31	Trichiniasis . . . . .	667
Spiked by a Platypus, by W. K.		Crawford, H. . . . .	297	Trichomonas Vaginitis . . . . .	788
Hughes . . . . .	244, 458	Sprue Associated with Amœbic		"Uroselectan" . . . . .	382
Sprue and Amœbic Dysentery—		Dysentery . . . . .	301	Use of Bismuth in the Treat-	
By W. L. Calov . . . . .	184	Cretinism . . . . .	455	ment of Syphilis . . . . .	726
By H. Crawford . . . . .	301	Crisp, R. H. . . . .	735	Value of Ramification, The . . . . .	637
Superannuation Scheme for		Croll, D. G. . . . .	455, 486	Curriculum, The Medical, at the	
Doctors—		Crookshank, F. G. (Epidemio-		University of Sydney (Lead-	
By K. J. B. Davis . . . . .	245	logical Essays) (rev.) . . . . .	352	ing Article) . . . . .	755
By A. R. Southwood . . . . .	617	Crowley, Cornelius George, Death		Curtin, A. . . . .	577
Teeth Extraction—		of . . . . .	647, 768	Cyst—	
By A. Amies . . . . .	458	Cumpston, J. H. L. . . . .	515, 677	Of Frontal Lobe following	
By R. N. Burton . . . . .	301	Public Health in Australia—		Fracture . . . . .	761
Tonsillectomy—		Part I, The First Forty-two		Of the Head of the Femur . . . . .	762
By R. G. Brown . . . . .	361	Years . . . . .	491	Of the Humerus . . . . .	762
By F. W. Fay . . . . .	300			Solitary, of the Kidney . . . . .	797

	Page.		Page.		Page.
D		Diagnosis—Continued.		Drug Regulations in Victoria,	
Dale, J. . . . .	674	Special Articles on—Continued.		Dangerous . . . . .	769
Daly, H. J. . . . .	545	Food Poisoning, by D. M.		Duguid, C.—	
Dansey, St. J. W.—		McWhae . . . . .	268	Leprosy . . . . .	233
Diseases of the Gall Bladder . .	563	Head Injuries, by V. M.		Duguid, J. B. . . . .	142
Davey, R. D.—		Coppleson . . . . .	448	Duhig, J. V. . . . .	91, 92
Workers' Compensation . . . .	299	Heart Disease, by S. A. Smith	640	Carotenæmia (Biochemical	
Davidson, M. (Cancer of the Lung		Infections of the Fallopiian		Notes) . . . . .	260
and Other Intrathoracic		Tubes . . . . .	146	The Pathology of Metropathia	
Tumours) (rev.) . . . . .	172	Late Cutaneous Manifesta-		Hæmorrhagica . . . . .	67
Davidson, R. . . . .	63	tions of Syphilis, by N. Paul	90	Duncan, W. J. L. . . . .	65, 391
Davies, F. L. . . . .	486, 763	Leprosy, by E. H. Molesworth	324	Medical Men as Novelists . .	225
Davies, G. F. S.—		Leuchæmias, The, by E.		Dunlop, D. M. . . . .	412
Congenital Malformations of		Russell . . . . .	512	Dysentery—	
the Heart and Great Vessels:		Malaria, by W. L. Calov . .	54	Sprue and Amœbic, by W. L.	
Report of Two Cases . . . .	138	Malnutrition in Children, by		Calov . . . . .	184
Davis, K. J. B., Superannuation		L. Hughes . . . . .	730	By H. Crawford . . . . .	301
Scheme for Doctors . . . . .	245	Minor Mental Invalidism, by		Dyspepsia, Diagnosis of, by C. G.	
Davis, N. . . . .	94, 147, 149, 514	J. Bostock . . . . .	358	McDonald . . . . .	700
Some Recent Advances in the		Pain in the Back, by C. W. B.		Dyspepsias, A Text Book of the	
Treatment of Pulmonary		Littlejohn . . . . .	670	Surgical, by A. J. Walton	
Disease . . . . .	133	Pneumonia, by C. T. Ch. de		(rev.) . . . . .	477
Dawson, B.—		Crespigny . . . . .	416	Dystrophy—	
Early Endometriotic Invasion of		Prostatic Obstruction, by A. S.		Facial Scapulo-Humeral Mus-	
the Broad Ligament . . . .	350	Roe . . . . .	612	cular, of Landouzy-Déjérine .	585
Dawson, W. S. . . . .	186, 453, 454	Tuberculosis of the Spine, by		Muscular . . . . .	29
Psychiatry and Medicine . .	500	R. M. Downes . . . . .	120	Pseudo-Hypertrophic Muscular	585
Deafness—		Tuberculous Diseases of the		E	
And Its Alleviation by Opera-		Skin, by H. Lawrence . .	542	Eady, C. V. . . . .	576
tion, by V. Nesfield (rev.) .	785	Typhoid Fever, by A. Murphy	296	Eady, M. J. . . . .	577
The Treatment of, by the Zünd-		Surgical, by American authors,		Eady, V. . . . .	577
Burguet Electro-Phonöide		edited by E. A. Graham,		Ear—	
Method, by R. G. Brown . .	375	Volumes I, II and III (rev.)	114	Eye, Nose and Throat (Practical	
De Crespigny, C. T. Ch. . . .	763	Diary for the Month . . . .	364, 394,	Medicine Series, 1930) (rev.)	664
Diagnosis of Pneumonia . . .	416	426, 460, 490, 520, 550, 590,		Modern Treatment of Diseases	
Deformities, Multiple Congenital	583	618, 648, 678, 708, 736, 770, 798		of the Throat, Nose and, by	
Deformity, Bilateral Phlegmasia		Diathermy—		H. L. Whale (rev.) . . . .	352
Alba Dolens and Spinal . . .	180	In Chronic Pneumonia . . .	588	Earl, C. J. C. . . . .	174
Deibert, I. E. . . . .	292	Medical and Surgical, in Oto-		Earlam, M. S. S., and A. Bolliger—	
De Lee, J. B. . . . .	605	Laryngology, by D. McKenzie		The Excretion of Intravenously	
Dementia, Senile . . . . .	454	(rev.) . . . . .	380	Injected Sodium Thiosulphate	
Demodex, Pityriasis Folliculorum,		Diathesis: Gout, Tuberculosis,		During Uncomplicated Human	
by H. Lawrence and R. Brodie	529	Cancer, Diagnosis of, by R. S.		Pregnancy . . . . .	427
De Monchau, C. . . . .	328	Skirving . . . . .	22	Eclampsia . . . . .	645
Denham, H. K. . . . .	30	“Dickens,” Scarlet Fever . .	589, 707	Ectopia Vesicæ . . . . .	796
Derham, A. P. . . . .	587	Diet in Disease, by G. A. Harrop,		Editorial Notices 32, 98, 124, 156,	
Dermatitis—		Junior (rev.) . . . . .	442	186, 218, 246, 274, 302,	
Pyogenic Verrucose, by G. R.		Dietetics in Warm Climates, by		334, 364, 394, 426, 460,	
Hamilton and E. B. Jones . .	476	J. N. Leitch (rev.) . . . .	262	490, 520, 550, 590, 618,	
Dermatological Conditions . .	545	Digestive System, Practical		648, 678, 708, 736, 770, 798	
Dermatology, Principles and Prac-		Treatise on Diseases of the, by		Education, The Foundation of a	
tice of, Volume III, by N.		L. W. Kohn (rev.) . . . .	634	Medical School and the Pro-	
Toomey (rev.) . . . . .	536	Diploma Courses, Proposed, at the		gress of Medical Education	
Dew, H. . . . .	704	University of Melbourne . .	62	(Halford Oration), by R.	
Diabetes Mellitus, Diagnosis of,		Diseases, Surgical, of the Kidney	29	Stawell . . . . .	1
by C. B. Blackburn . . . .	484	Dislocation, Congenital, of the		Edwards, His Honour Judge . .	359
Diagnosis—		Hip . . . . .	583, 586	Edwards, J. G. . . . .	360, 581
A Case for . . . . .	269, 454, 645	Dissection, Anatomical . . .	91	Valve-Rectified X Ray Machines	564
Physical, by R. C. Cabot (rev.)	634	Dixon, G. P. . . . .	456	Edye, B. T. . . . .	456
Special Articles on—		Dochez . . . . .	321	Elbow Joint, Injuries to the . .	297
Acute Intracranial Infections,		Dods, J. E. . . . .	242, 363	Elephantiasis . . . . .	588
by J. G. Hislop . . . . .	789	Donovan, H. C. E. . . . .	148, 180	Ellery, R. S. . . . .	391
Acute Poliomyelitis, by J.		Douthwaite, A. H. (The Treatment		Diagnosis of the Epilepsies . .	208
Macnamara . . . . .	386	of Chronic Arthritis) (rev.)	753	Ophthalmological Aspects of	
Causes of Obesity, The, by		Downes, R. M.—		Psychiatry . . . . .	368
A. S. Walker . . . . .	178	Diagnosis of Tuberculosis of the		Ellis, C., Child Hygiene . . . .	109
Cerebral Hæmorrhage, by A.		Spine . . . . .	120	Elvins, H. F. H. . . . .	66
Holmes & Court . . . . .	760	The War and Sir Neville		Embelton, D. M. . . . .	586, 674
Chronic Lead Poisoning, by		Howse's Part Therein . . .	332	The Hospital Problem . . . .	518
S. F. McDonald . . . . .	572	Downie, E., and M. Long, Pruritus		Embolism, Thrombosis and . .	117
Diabetes Mellitus, by C. B.		Vulvæ in Relationship to		Empyema, Bilateral, Broncho-	
Blackburn . . . . .	484	Intermittent Glycosuria . .	721	pneumonia and, Following	
Diathesis: Gout, Tuberculosis,		Doyle, L.—		Abortion . . . . .	181
Cancer, by R. S. Skirving . .	22	The Selection of an Anæsthetic	194	Encephalitic Condition, Post-	454
Dyspepsia, by C. G. McDonald	700	Dr. Chisholm Ross . . . . .	333	Encephalitis—	
Epilepsies, The, by R. S.		By A. MacCormick <i>et alii</i> . .	31	Lethargica . . . . .	588
Ellery . . . . .	208	Drink, What We, edited by H. W.		Syphilitic . . . . .	453
Exanthemata, The, by F. V. G.		Bayly (rev.) . . . . .	724	Encephalomyelitis, Post-Vaccinal,	
Scholes . . . . .	240			by L. Lockwood . . . . .	662



	Page.		Page.		Page.
Endometriotic Invasion, Early, of the Broad Ligament, by B. Dawson .. .	350	Feez, A. H. M. .. .	149	Garrison, F. H. (An Introduction to the History of Medicine) (rev.) .. .	16
Endometrium—		Fekete, A. V. (Die Funktion der Weiblichen Geschlechtsorgano (rev.) .. .	140	Garton Prize and Medal, The .. .	362
And Uterine Hemorrhage .. .	91	Ferguson, B. .. .	674	Gastric and Duodenal Ulcer and Glycosuria .. .	696
Observations on, by M. G. Sutton .. .	34	Ferguson, Mr. Justice .. .	576	Gastric Syphilis .. .	697
England, T. M. .. .	452	Ferrée, C. J. (The Soya Bean and the New Soya Flour) (rev.) .. .	202	Gastro-Enterostomy—	
Epidemiological Essays, by F. G. Crookshank (rev.) .. .	352	Fibroid of the Uterus .. .	544	And Colopexy .. .	796
Epilepsies, Diagnosis of the, by R. S. Ellery .. .	208	Fibroids, of the Uterus, The Treatment of, by H. H. Schlink and C. L. Chapman .. .	691	Posterior .. .	796
Epilepsy—		Fibromyoma, Submucous, and Secondary Anæmia .. .	179	Gastro-Intestinal Tract, Some Recent Developments in the Radiological Examination of the, by J. O'Sullivan .. .	685
Basis of, by E. A. Tracey (rev.) .. .	723	Fiction, Medicine in, in the Last Hundred Years, by S. F. McDonald .. .	709	Gault .. .	392
Major Convulsive, A Note on the Diagnosis of, and Blood Cholesterol Changes in, by K. Maddox .. .	531	Finckh, A. E.—		Generative Organs, Function of the Female, by A. V. Fekete (rev.) .. .	140
Traumatic, by A. Murphy .. .	317	The Vernes Test as Applied to Syphilis .. .	458	Genu Valgum .. .	586
Venin for the Treatment of, by F. A. Wood .. .	245	Finley, C. A. .. .	576, 578	Genu Varum .. .	586
Epiphyses, The Union of, by H. Flecker .. .	301	Firkin, F. L. .. .	269	Ghosh, B. N. .. .	290
By A. Palmer .. .	31	Fishberg, A. M. (Hypertension and Nephritis) (rev.) .. .	48	A Treatise on Hygiene and Public Health (rev.) .. .	442
Epiphysis, Separation of the Radial .. .	587	Fisher, E. M.—		Ghosh, R. (A Treatise on Materia Medica and Therapeutics) (rev.) .. .	290
Episcopal Hospital, Medical and Surgical Reports of the (note) .. .	114	Intestinal Obstruction Due to Ring Cancer of the Rectum .. .	47	Gibson, A. J. .. .	148, 180
Epithelioma—		Remarks on Penetrating Peptic Ulcer .. .	503	Gilbert, E. M. .. .	581
Of the Lip .. .	28	Fistula, Recto-Vaginal, Horseshoe Kidney and .. .	583	Gill, H. B. .. .	732
Of the Penis Treated by Radium, by W. Maxwell and H. M. Moran .. .	409	Fitzpatrick, S. C. .. .	32	Gill, J. M. .. .	93
Ergosterol, Irradiated, by F. S. Hansman .. .	185	Flecker, H.—		Gissan, D. J. .. .	360, 580
Erythema Multiforme .. .	299, 796	The Union of Epiphyses .. .	301	Glycosuria—	
Erythroedema .. .	584	Flynn, J. .. .	545	Gastric and Duodenal Ulcer and Pruritus Vulvæ in Relationship to Intermittent, by M. Long and E. Downie .. .	721
Two Cases of, by A. W. Shugg .. .	722	Forbus, W. D. .. .	51	Gottre, Exophthalmic, and Chorea .. .	584
Erythromelalgia .. .	762	Foster, B.—		Goldstein, L. .. .	788
Essays and Addresses, by A. Surgeon (rev.) .. .	113	Tick in the Auditory Meatus .. .	15	Goldsworthy, N. E. .. .	94
Euclaypts, An Anthography of the, by R. Grimwade (rev.) .. .	535	Tonsillectomy .. .	272	Gonin Operation, The, for the Cure of Idiopathic Retinal Detachment, by J. B. Hamilton .. .	600
Eusterman, G. B. .. .	697	Fowler, R.—		Gordon, L. .. .	175
Evans, A. M., and W. S. Patton—		The War and Sir Neville Howse's Part Therein .. .	246	Gordon, R. G., and F. G. Thomson (The Physiological Principles of Hydrology) (rev.) .. .	290
(Insects, Ticks, Mites and Venomous Animals of Medical and Veterinary Importance; Part I, Medical) (rev.) .. .	262	Fracture—		Goulston, D. L.—	
Evans, A. S. .. .	154	Colles's, by A. Bulteau .. .	97	A Hypertrophic Response to Radium Irradiation .. .	335
Evans, W. .. .	27	Compound, of the Frontal Bone .. .	761	Gout: Diathesis, Diagnosis of .. .	22
Pulmonary Tuberculosis in Children .. .	97	Cyst of Frontal Lobe Following Of the Femur .. .	544	Gower, A. O. .. .	767
Evatt, C. .. .	359	Of the Tibia .. .	761	"G.P."—	
Evidence, Medical, by His Honour Judge Pedriau .. .	187	Fractures—		The Fees of Specialists .. .	96
Ewan, G. L. .. .	270	And Rheumatism, by S. Pern .. .	549	"G.P." Secundus—	
Juvenile Paretic Neuro-Syphilis .. .	112	Of the Maxillary Zygomatic Region and their Treatment, by H. S. Stacy .. .	779	The Fees of Specialists .. .	271
Exanthemata, Diagnosis of the, by F. V. G. Scholes .. .	240	Fraser, K. B. .. .	455	Grafting, Testicular, from Ape to Man, by S. Voronoff and G. Alexandrescu (rev.) .. .	84
Exercise, Its Functions, Varieties and Applications, by A. Abrahams (rev.) .. .	261	Friedreich's Ataxia .. .	180	Graham, E. A. (Surgical Diagnosis, by American Authors) (rev.) .. .	114
Extroversion of the Bladder .. .	583	Fulton, R. A. H., Local Anæsthesia .. .	425	Graham, R. V.—	
Eye—		Fungi Imperfecti .. .	617	Intradural Resection of Posterior Primary Divisions for Intractable Sciatic Pain .. .	112
And Ear Hospital (Melbourne) .. .	391	Furber, R. I.—		Grant, David, Death of .. .	589, 766
Conditions .. .	545	"Sodium Amytal" in Anæsthesia .. .	744	Grant, R. L. T.—	
Ear, Nose and Throat (Practical Medicine Series; 1930) (rev.) .. .	664	Furnell, H. G.—		And L. O. Betts—	
F		Trichomonas Vaginalis .. .	604	Complete Obstructive Jaundice Due to Obliteration of the Common Bile Duct in a Child .. .	200
Fagge, C. H. .. .	666	G		Pulmonary Tuberculosis in Children .. .	245
Fallopian Tubes, Diagnosis of Infections of the, by R. Worrall .. .	146	Galbraith, D. .. .	674	Granuloma Annulare .. .	29
Farrar, L. K. P. .. .	143	Gall Bladder—		Gray, H. J. .. .	733
Fay, F. W., Tonsillectomy .. .	300	Diseases of the, by St. J. W. Dansey .. .	563	Green, A. K., and G. M. Heydon, Some Worm Infestations of Man in Australia .. .	619
Fecundity, Climate and .. .	444	Scoop .. .	545	Green, J. .. .	576
Fees of Specialists, The—		Game, P. .. .	704		
By "G.P." .. .	96	Gamble, Morris Frederick Horsley, Death of .. .	302, 457		
By "G.P." Secundus .. .	271	Gandevia, E. .. .	65		
By A. B. K. Watkins .. .	184	Gangrene—			
		Due to Ergot .. .	544		
		Use of Periarterial Sympathectomy in .. .	339		
		Gardner, M. .. .	391, 392, 587		
		Gardner, R. A. .. .	382		
		Garland, H. G. .. .	237		
		Garrett, Keith Morison, Death of .. .	124		

	Page.		Page.		Page.
Greenbaum, S. S. . . . .	726	Heart—		Hospitals . . . . .	19
Greenhill, J. P. . . . .	605	And Great Vessels, Congenital		Honorary Staffs of Public . . . . .	735
Grieve, J. W. . . . .	584	Malformations of the: Report		Public, Act, 1929 . . . . .	422
Grimwade, R. (An Anthrography of		of Two Cases, by G. F. S.		Public, Royal Commission on,	
the Eucalypts) (rev.) . . . . .	535	Davies . . . . .	138	in Queensland . . . . .	94
Groddeck, G. (The Unknown Self:		Disease—		Queensland (Leading Article) . . . . .	85
A New Psychological Approach		Diagnosis of, by S. A. Smith . . . . .	640	Royal Prince Alfred—	
to the Problems of Life (rev.) . . . . .	536	Diagnosis and Treatment of,		Fungi Imperfecti . . . . .	617
Gullett, L. . . . .	646	by E. M. Brockbank (rev.) . . . . .	694	Treatment of Syphilis . . . . .	488
Guthridge, G. H. . . . .	65	Psychosis with . . . . .	452	Howard, C. (After Consulting	
Gutteridge, E. W. . . . .	65	Heathcote, R. St. A. . . . .	382	Hours) (rev.) . . . . .	202
Perforation of the Esophagus		Helms, K. T. . . . .	93, 94	Howard, N. J. . . . .	509
and Mediastinitis . . . . .	232	Early Diagnosis and Serum		Howse, Sir Neville, The War and	
Gutteridge, M. V.—		Treatment of Poliomyelitis . . . . .	71	His Part Therein—	
The Mental Hygiene of Child-		Hemiparesis . . . . .	587	By J. K. Adey . . . . .	215
hood . . . . .	107	Hennessey, R. . . . .	587	By A. Aspinall . . . . .	184
Gutteridge, N. M. . . . .	795	Henry, C. . . . .	454	By A. G. Butler . . . . .	273
Gynaecology—		Henry, J. T. . . . .	796	By R. M. Downes . . . . .	332
Obstetrics and (Practical Medi-		Henry, T. J.—		By R. Fowler . . . . .	246
cine Series: 1929) (rev.) . . . . .	605	An Association of Physicians . . . . .	489	By V. Hurley . . . . .	331
Short Practice of, by H. Jellett		Hermaphroditism . . . . .	609	By H. E. Jackson . . . . .	333, 393
and R. Tottenham (rev.) . . . . .	723	By C. H. Norton . . . . .	233	By F. A. Maguire . . . . .	216
H		Hernia, Congenital Diaphragmatic,		By R. J. Millard . . . . .	217
Hadley, F. A. . . . .	486	in a Young Girl, by P. L.		By A. H. Moseley . . . . .	215
Hæmatoma, Vaginal . . . . .	646	Hipsley . . . . .	200	By J. S. Purdy . . . . .	332
Hæmochromatosis . . . . .	27	Hertz, M. . . . .	152	By J. W. Springthorpe . . . . .	155, 393
Hæmorrhage—		Heydon, G. M., and A. K. Green,		Hubbard, D. E. . . . .	582
Diagnosis of Cerebral, by A.		Some Worm Infestations of		Hughes, L., Diagnosis of Mal-	
Holmes & Court . . . . .	760	Man in Australia . . . . .	619	nutrition in Children . . . . .	730
Endometrium and Uterine		Hill, T. C. (A Manual of Proe-		Hughes, T. D. . . . .	180
Observations on, by M. G.		tology) (rev.) . . . . .	16	Hughes, W. K.—	
Sutton . . . . .	34	Hipsley, P. L.—		Anterior Poliomyelitis . . . . .	768
Pathology of Metropathia		Congenital Diaphragmatic		Electro-Surgery of the Tonsils . . . . .	185
Hæmorrhagica, by J. V. Duhig . . . . .	67	Hernia in a Young Girl . . . . .	200	Spiked by a Platypus . . . . .	244, 458
Halford, A. C. F., Osteomyelitis . . . . .	458	Two Cases of Intussusception . . . . .	378	Tonsillectomy . . . . .	489
Halford Oration, The, by R.		Hirschsprung's Disease . . . . .	584	Hume, W. E. . . . .	480
Stawell . . . . .	1	Hirshfeld, S. . . . .	539	Humphery, E. M. . . . .	147
Hall, A. J. . . . .	172	Hislop, J. G. . . . .	733	Hunt, B.—	
Hall, R. D. McK. . . . .	733	Diagnosis of Acute Intracranial		Examination of the Central	
Halliday, J. C., The Pathology of		Infections . . . . .	789	Nervous System . . . . .	461
Retinitis Pigmentosa . . . . .	677	History—		Hunter, J. G. . . . .	614
Hamilton, G. R., and E. B. Jones,		Early Medical . . . . .	62	Police Offences Amendment	
Pyogenic Verrucose Dermatitis . . . . .	476	Of Medicine, An Introduction to		(Drugs) Act, 1927 (New	
Hamilton, J. B.—		the, by F. H. Garrison (rev.) . . . . .	16	South Wales) . . . . .	360
The Gonin Operation for the		Hodgkin's Disease, by L. Utz and		Hurley, V. . . . .	56, 66, 330, 674, 705
Cure of Idiopathic Retinal		L. Keatinge . . . . .	397	The War and Sir Neville	
Detachment . . . . .	600	Holland, J. J. . . . .	733	Howse's Part Therein . . . . .	331
Hamilton, T.—		Holmes & Court, A. . . . .	29, 518	Hurst, A. F. . . . .	383, 479
Primary Intussusception of the		Diagnosis of Cerebral Hæmor-		Hydatid Disease, Unusual Mani-	
Appendix . . . . .	408	rhage . . . . .	761	festations of, by A. E. Lee . . . . .	288
The Hospital Problem . . . . .	299	Honours . . . . .	769	Hydrocephalus, Neuro-Surgical	
Hansman, F. S.—		Birthday . . . . .	736	Aids in the Diagnosis of, by	
Clinical Importance of Certain		Hood, J. . . . .	31	R. A. Money . . . . .	526
Chemical Constituents of the		Hooper, J. W. D. . . . .	64	Hydrology, The Physiological	
Blood . . . . .	560	Hormones, Placental . . . . .	508	Principles of, by R. G. Gordon	
Irradiated Ergosterol . . . . .	185	Hornabrook, R. W.—		and F. G. Thomson (rev.) . . . . .	290
Hardwicke, G. A.—		Action of Chloroform . . . . .	616	Hydro-Pneumothorax . . . . .	797
And O. Latham—		Waldemar Haffkine, C.I.E. . . . .	183	Hygiene—	
Death Under Anæsthesia:		Hospital—		And Public Health, A Treatise	
Lesions in the Medulla and		Adelaide . . . . .	613	on, by B. N. Ghosh (rev.) . . . . .	442
Possible Status Thymico-		Brisbane . . . . .	297	Child, by C. Ellis . . . . .	109
Lymphaticus . . . . .	534	Callan Park . . . . .	452	Mental, of Childhood, by M. V.	
Experiences with "Sodium		Children's, Melbourne . . . . .	583	Gutteridge . . . . .	107
Amytal" as a Basal Anæ-		Episcopal, Medical and Surgical		Hyland, H. H. . . . .	237
sthetic . . . . .	750	Reports of the . . . . .	114	Hyman, A. S. . . . .	86
Harrop, G. A. (Diet in Disease)		Eye and Ear, Melbourne . . . . .	391	Hyman, H. T. . . . .	539
(rev.) . . . . .	442	For Sick Children, Brisbane . . . . .	455	Hyperemesis Gravidarum . . . . .	180
Harvey, C. . . . .	147, 514	For the Insane, Claremont . . . . .	732	Hypertension and Nephritis, by	
Head Injuries—		Lewisham . . . . .	544	A. M. Fishberg (rev.) . . . . .	48
At Birth, by K. Christie . . . . .	336	Mater Misericordiarum, Brisbane . . . . .	796	Hypoglycæmia and the Islands of	
Diagnosis of, by V. M. Coppleston . . . . .	448	Newcastle . . . . .	269	Langerhans . . . . .	788
Health—		Royal Prince Alfred . . . . .	488, 617	Hysteria . . . . .	270
And the Public (Leading		Sydney . . . . .	27	I	
Article) . . . . .	635	Women's, Crown Street, Sydney . . . . .	179	Iceeton, S. G.—	
Bill, The Victorian . . . . .	121	Hospital Bill (Western Australia) . . . . .	732	H. R. G. Poate and A. H.	
Research Council . . . . .	488	Hospital Problem, The—		Tebbutt—	
		By D. M. Embelton . . . . .	518	Gastric Intussusception in an	
		By T. Hamilton . . . . .	299	Adult due to a Rare Tumour . . . . .	82
		By E. S. Meyers . . . . .	184		

	Page.		Page.		Page.
Immunization, Scarlet Fever—		Keith, A. . . . .	318	Leading Articles—Continued.	
By "Dickens" . . . . .	707	Kellaway, C. H. . . . .	181	Medicine and the Mind . . . . .	537
By F. Tidswell and S. W. G.		Kerr, G. L. . . . .	548	Next Congress, The . . . . .	115
Ratcliff . . . . .	647	Kesteven, H. L.—		On Reading . . . . .	725
Income Tax and Income Tax		The Treatment of Difficult		Poliomyelitis . . . . .	665
Returns . . . . .	789	Labour in General Practice . . . . .	243	Post-Graduate Teaching in Eng-	
Infant Nutrition—		Workers' Compensation Insur-		land . . . . .	49
By L. R. Scammell . . . . .	425	ance Practice in New South		Professional Secrecy . . . . .	353
Text Book of Infant Feeding for		Wales . . . . .	519	Queensland Hospitals . . . . .	85
Students and Practitioners of		Kidney—		Rest, Work and Play . . . . .	567
Medicine, A, by W. McK.		Horseshoe, and Recto-Vaginal		Retrospect . . . . .	17
Marriott (rev.) . . . . .	234	Fistula . . . . .	583	Royal Australasian College of	
Infantile Paralysis [see Polio-		Surgical Diseases of the . . . . .	29	Surgeons, The . . . . .	695
myelitis]		Kiloh, W. M. . . . .	581	Scarlet Fever . . . . .	443
Injections, Intravenous . . . . .	539	King, E. S. J. . . . .	707	Still-Birth and Neonatal Mor-	
Injuries, Head, at Birth, by K.		Kirkland, A. S. . . . .	264	tality . . . . .	235
Christie . . . . .	336	Kohn, L. W. (Practical Treatise		Stocktaking . . . . .	787
Insects, Ticks, Mites and Venomous		on Diseases of the Digestive		Tonsillectomy . . . . .	173
Animals of Medical and		System) (rev.) . . . . .	634	Workers' Compensation in West-	
Veterinary Importance, Part		Kopetzky, S. J. (Otolologic Sur-		ern Australia . . . . .	319
I, Medical, by W. S. Patton		gery) (rev.) . . . . .	380	Lederer, M. . . . .	757
and A. M. Evans (rev.) . . . . .	262			Lee, A. E., Unusual Manifestations	
Insulin, Duty on . . . . .	488	L		of Hydatid Disease . . . . .	288
International Congress of Oto-		Labour—		Lee, W. E., and F. T. Stewart (A	
Rhino-Laryngology . . . . .	549	The Treatment of Difficult in		Manual of Surgery) (rev.) . . . . .	785
International Neurological Con-		General Practice . . . . .	25	Leitch, J. N. (Dietetics in Warm	
gress, by R. A. Noble . . . . .	244	By P. T. S. Cherry . . . . .	12	Climates) (rev.) . . . . .	262
Intracranial Infections, Diagnosis		By H. L. Kesteven . . . . .	243	Le Messurier, F. . . . .	330
of Acute, by J. G. Hislop . . . . .	789	By J. Riddell . . . . .	8	Leprosy—	
Intussusception—		Labyrinthitis, Acute . . . . .	613	By C. Cook . . . . .	183
By C. Uren . . . . .	289	Lactic Acid, The Estimation of, in		By C. Duguid . . . . .	233
Gastric, in an Adult, due to a		blood, by W. B. S. Bishop . . . . .	219	By E. H. Molesworth . . . . .	272
Rare Tumour, by S. G. Icton,		Lambie, C. G. . . . .	456	Diagnosis of, by E. H. Moles-	
H. R. G. Poate and A. H.		The Study of Medicine . . . . .	125	worth . . . . .	324
Tebbutt . . . . .	82	Landouzy-Déjérine . . . . .	585	Lesion—	
Primary, of the Appendix, by		Langdon, J. F. B. . . . .	545	Complete, of Brachial Plexus . . . . .	584
T. Hamilton . . . . .	408	Langerhans, Hypoglycæmia and		Hip Joint . . . . .	545
Two Cases of, by P. L. Hipsley		the Islands of . . . . .	788	Lethbridge, H. O.—	
Irradiation, Harmful Effects of		Larynx, The Mechanism of the, by		Trichomonas Vaginitis . . . . .	232
Ischemia and Pain in the Leg		V. E. Negus (rev.) . . . . .	318	Leuchæmias, Diagnosis of the, by	
Treated by Ramisection . . . . .	28	Latham, L. S. . . . .	66	E. Russell . . . . .	512
J		Latham, O. . . . .	94	Le Wald, L. T. . . . .	697
Jackson, C. . . . .	321	And C. A. Hardwicke—		Lewisham Hospital . . . . .	544
Jackson, C. R. . . . .	509	Death Under Anæsthesia:		Ley, C. M. . . . .	64
Jackson, E. S. . . . .	182	Lesions in the Medulla and		Library, Pathological . . . . .	392
Jackson, H. E.—		Possible Status Thymico-		Lilley, A. B.—	
The War and Sir Neville		Lymphaticus . . . . .	534	The Preparation of Human Im-	
Howse's Part Therein . . . . .	333, 393	Lawes, C. H. E. . . . .	515	mune Serum for the Treat-	
Jacksonian Prize, The . . . . .	707	Professional Advertisement . . . . .	707	ment of Poliomyelitis . . . . .	251
Jacobs, M. . . . .	63	Lawrence, H.—		Lindon, L. C. E.—	
Jaffe, H. L. . . . .	636	And R. Brodie—		Some Notes on Neuro-Surgery . . . . .	365
Jankelson, I. R. . . . .	696	Pityriasis Folliculorum		Lipscomb, T. W. . . . .	486, 545
Jaundice—		(Demodex) . . . . .	529	Listerian Oration . . . . .	243
Complete Obstructive, Due to		Diagnosis of Tuberculous Dis-		Literature, Australian Medical . . . . .	677
Obliteration of the Common		eases of the Skin . . . . .	542	Little, M. . . . .	646
Bile Duct in a Child, by		Lead—		Littlejohn, C. W. B.—	
R. L. T. Grant and L. O. Betts		Excretion of, The, in the Urine		Diagnosis of Pain in the Back . . . . .	670
200		after Injection of Colloidal		Liver, Scurvy and Extreme Fatty	
Jellett, H., and R. Tottenham (A		Lead Orthophosphate, by R. K.		Degeneration of the, by E. H.	
Short Practice of Gynæcology)		Newman . . . . .	373	M. Stephen and F. Tidswell . . . . .	534
(rev.) . . . . .	723	Poisoning, Diagnosis of Chronic,		Lockwood, L.—	
Johnson, A. S. . . . .	732	by S. F. McDonald . . . . .	572	Post-Vaccinal Encephalomyelitis . . . . .	662
Johnson, Robert Thomas, Death of		Leading Articles—		Lodge Agreement, Model . . . . .	733, 735
31		Association of Physicians, An . . . . .	381	Long, M., and E. Downie—	
Johnston, M. B. . . . .	735	Asthma . . . . .	479	Pruritus Vulvae in Relationship	
Johnston, W. W. S. . . . .	66	Branch Councils . . . . .	411	to Intermittent Glycosuria . . . . .	721
Jones, E. B. . . . .	613	Branch Meetings . . . . .	263	Ludowicz, E. . . . .	179
And G. R. Hamilton—		Canberra Cancer Conference,		Lupus—	
Pyogenic Verrucose Dermatitis		The . . . . .	607	Erythematosis . . . . .	613
476		Cancer and Public Health		Vulgaris . . . . .	613
Jones, E. E. . . . .	547, 548	Authorities . . . . .	291	Lymphadenoma . . . . .	298
Jones, R. . . . .	352	Cancer of the Stomach . . . . .	141	Lymphosarcoma of the Neck, by	
Jones, W. E. . . . .	457	Clinical Records . . . . .	203	C. B. Blackburn . . . . .	565
Jull, R. . . . .	732	Health and the Public . . . . .	635	Lynch, John Adrian, Death of	
K		Medical Curriculum, The, at the		518, 647	
Kaiser, A. D. . . . .	173	University of Sydney . . . . .	755		
Katherine Bishop Harman Prize,		Medical Writer's Bibliography,		M	
The . . . . .	362	The . . . . .	507	Macartney, G. . . . .	797
Keatinge, L., and L. Utz—				MacCormick, A. . . . .	31, 154, 333
Hodgkin's Disease . . . . .	397			Macdonald, C. . . . .	65, 588



	Page.		Page.		Page.
Macgregor, P. B. . . . .	797	McDonald, S. F.—Continued.		Medical Services—	
Machin, A. E. . . . .	548	Medicine in Fiction in the Last		Army [see Army Medical Ser-	
Mackellar, J. A. . . . .	149	Hundred Years . . . . .	709	Services]	
Mackenzie, C. . . . .	768	McDowall, V. . . . .	328	To Natives in Central Australia	487, 763
Mackenzie, J. F.—		McGibbon, L. . . . .	582		
Suggested Surgical Treatment of		McKay, W. J. S. . . . .	31, 544	Medical Societies—	
Bone in Rheumatoid Arthritis	441	McKelvey, J. L. . . . .	154	Association of Physicians of	
Mackenzie, J. K. D.—		McKendree, C. A. (Neurological		Australasia (Including New	
Poisoning by Arsenic . . . . .	317	Examination) (rev.) . . . . .	380	Zealand) . . . . .	243
Macnamara, J. . . . .	329, 585	McKenzie, D. (Diathermy, Medical		Clinical Society of the Hospital	
Diagnosis of Acute Poliomyelitis	386	and Surgical, in Oto-Laryn-		for Sick Children, Brisbane . . .	455
Poliomyelitis . . . . .	589	gology) (rev.) . . . . .	380	Medical Defence Society of	
MacPherson, J., Poisoned Spears		McKillop, L. M. . . . .	327, 797	Queensland . . . . .	242
of the Australian Aborigines . .	780	Two Abdominal Tumours . . . .	603	Medical Women's Society of New	
Maddox, K.—		McPhail . . . . .	508	South Wales . . . . .	646
A Note on the Diagnosis of and		McPhee, R. G. . . . .	56, 66, 575, 576	Melbourne Pædiatric Society . .	583
Blood Cholesterol Changes in		An Address . . . . .	33	Newcastle Hospital Clinical	
Major Convulsive Epilepsy . . .	531	McWhae, D. M.—		Society . . . . .	269
Magee, Charles Crozier Tandy,		Diagnosis of Food Poisoning . .	268	New South Wales Medical Union	647
Death of . . . . .	32	Meagher, J. L. . . . .	588	Public Medical Officers' Associa-	
Maguire, F. A.—		Diagnosis of Whooping Cough	103	tion of New South Wales . . .	545
The War and Sir Neville		Meatus, A Tick in the Auditory,		Medical Women's Society of New	
Howse's Part Therein . . . . .	216	by B. Foster . . . . .	15	South Wales—	
Mahon, E. J. . . . .	509	Mediastinitis, Perforation of the		Annual Report and Financial	
Malaria, Diagnosis of, by W. L.		Esophagus and, by E. W.		Statement . . . . .	646
Calov . . . . .	54	Gutteridge . . . . .	232	Constitution . . . . .	647
Malarial Treatment . . . . .	298	Medical Appointments . . . . .	98,	Office-bearers . . . . .	646
Malformations, Congenital, of the		124, 156, 186, 246, 274, 302, 334,			
Heart and Great Vessels: Re-		364, 460, 520, 550, 618, 678, 770, 798		Medicine—	
port of Two Cases, by G. F. S.		Important Notice . . . . .	32, 98, 124,	And the Mind (Leading Article) 537	
Davies . . . . .	138	156, 186, 218, 246, 274, 302, 334,		Clinical, A System of, by T. A.	
Malignancy, The Relation of White		364, 394, 426, 460, 490, 520, 550,		Savill (rev.) . . . . .	233
Blood Cells to . . . . .	297	590, 618, 648, 678, 708, 736, 770, 798		In Fiction in the Last Hundred	
Malnutrition . . . . .	568	Vacant, Etc. . . . .	32, 98, 124,	Years, by S. F. McDonald . . .	709
In Children, Diagnosis of, by L.		156, 186, 218, 246, 274, 302, 334,		Psychiatry and, by W. S. Dawson	500
Hughes . . . . .	730	364, 394, 426, 460, 490, 520, 550,		Study of, The, by C. G. Lambie	125
Manning, Mr. . . . .	149	590, 618, 648, 678, 708, 736, 770, 798		Synopsis of, by H. L. Tidy	
Marcus, M. . . . .	663			(rev.) . . . . .	565
Markwell, N. W. . . . .	298	Medical Benevolent Association of		Medico-Legal—	
Marks, E. O. . . . .	456	Western Australia . . . . .	733	Eady v. Finley . . . . .	576
Marriott, W. McK. (Infant Nutri-		Medical Boards, Proceedings of the		Mackellar v. Allport . . . . .	149
tion) (rev.) . . . . .	234	Australian [see Australian]		Tinter v. Vallack . . . . .	359
Marsh, H. T., and A. H. Tebbutt—		Medical Defence Society of Queens-		Meetings, Branch (Leading	
The First Case Report of In-		land . . . . .	242	Article) . . . . .	263
digeneous Undulant Fever in		Annual Report of the Council . .	242	Megaw, J. W. A., and L. Rogers	
New South Wales . . . . .	170	Dods, Death of John Espie . . .	242	(Tropical Medicine) (rev.) . .	754
Martin, C. . . . .	243	Election of Office-bearers . . .	243	Melbourne Pædiatric Society . .	583
Massage, A Textbook of, for		Financial Statements . . . . .	243	Melbourne Permanent Committee	
Nurses and Beginners, by M.		Medical Journal of Australia, The	421	for Post-Graduate Work . . .	66, 181
Rawlins (rev.) . . . . .	566	Medical Matters in Parliament—		Mella Azedarach, "White Cedar,"	
Materia Medica and Therapeutics,		The Victorian Health Bill . . .	121	Toxicity of, by H. R. Seddon	778
A Treatise on, by B. N.		Medical Men as Novelists, by		Meningitis Due to Mumps . . .	585
Ghosh (rev.) . . . . .	290	W. J. L. Duncan . . . . .	225	Mental Disorder, Ætiological	
Mater Misericordiæ Hospital,		Medical Practice—		Factors in . . . . .	733
Brisbane . . . . .	796	Certificates of Death . . . . .	271	Mental Derangement and Disorder	
Matheson, R. (A Handbook of the		Commonwealth Employees' Com-		of Special Senses . . . . .	452
Mosquitoes of North America)		pensation Act, 1930 . . . . .	614	Mental Disorders, The Influence of	
(rev.) . . . . .	289	Workers' Compensation Act,		Ætiological Factors upon the	
Mathew, R. Y.—		1928 (Victoria) . . . . .	122	Prognosis and Treatment of,	
A Laboratory Investigation for		Workers' Compensation Insur-		by R. G. Williams . . . . .	771
the Detection of Typhoid		ance Practice, New South		Mental Hygiene of Childhood, The,	
Carriers . . . . .	286	Wales . . . . .	211	by M. V. Gutteridge . . . . .	107
Maudsley, F. H. . . . .	65	Compensation . . . . .	212	Mental Invalidism, Diagnosis of	
Maudsley, H. . . . .	766	Medical and Hospital Treat-		Minor, by J. Bostock . . . . .	358
Maxwell, W., and H. M. Moran—		ment . . . . .	212	Mental Tests . . . . .	585
Epithelioma of the Penis		Medical Provisions . . . . .	214	Merrill, T. C. . . . .	84
Treated by Radium . . . . .	409	Railway Employees . . . . .	211	Metabolism, Carbohydrate . . .	26
May, G. (Social Control of Sex		Transport Trust . . . . .	211	Metropathia Hemorrhagica, The	
Expression) (rev.) . . . . .	536	Medical Prizes—		Pathology of, by J. V. Duhig	67
Mayo, H. . . . .	330	Garton Prize and Medal, The . .	362	Meyer, F. . . . .	182, 575
McClelland, W. C. . . . .	515	Jacksonian Prize, The . . . . .	707	Meyers, E. S. . . . .	91, 299, 329
McConnell, J. K. (Shorter Con-		Katherine Bishop Harman Prize,		The Hospital Problem . . . . .	184
valence) (rev.) . . . . .	352	The . . . . .	362	Michôd, F. A. H. . . . .	645, 795
McCutcheon, A. . . . .	588	Medical Profession in Australia,		Microbiology and Elementary	
McDonald, C. G.—		The . . . . .	17	Pathology for the Use of	
Diagnosis of Dyspepsia . . . . .	700	Medical Service—		Nurses, by C. G. Sinclair	
McDonald, S. F. . . . .	91, 92, 327, 455	Australian Inland Mission		(rev.) . . . . .	634
Diagnosis of Chronic Lead		Frontier . . . . .	487		
Poisoning . . . . .	572	To Farmers . . . . .	733		

	Page.
Obituary—	
Balfour, Andrew . . . . .	615
Cade, Frederick Joseph Richard	677, 735
Crowley, Cornelius George	647, 768
Dods, John Esple . . . . .	363
Gamble, Morris Frederick	
Horsley . . . . .	302, 457
Garrett, Keith Morison . . . . .	124
Grant, David . . . . .	589, 766
Johnson, Robert Thomas . . . . .	31
Lynch, John Adrian . . . . .	518, 647
Magee, Charles Crozier Tandy	32
Molloy, Charles Henry . . . . .	156, 392
O'Leary, Arthur Alphonsus . . . . .	246
Morgan, John . . . . .	489
Player, Charles Richard . . . . .	458, 768
RaySmith, Frank Walker . . . . .	215
Read, Stanley James Docker	589, 765
Reynolds, Thomas O'Loughlen	156, 425
Robertson, Norman Keith . . . . .	98
Scott, Alfred Frederick Steele	736
Soden, John Leslie Ross . . . . .	214
Sproule, William . . . . .	708
Stewart, Colin Percival . . . . .	708
Thomas, David . . . . .	246, 516
Travers, Geoffrey Frederick	215, 393
O'Brien, D. P., Cardiac Rupture . .	380
Obstetric Abnormalities . . . . .	575
The Diagnosis and Treatment of Some, by J. C. Windeyer . . . . .	551
Obstetrics and Gynaecology (Practical Medicine Series, 1929) (rev.) . . . . .	605
Obstruction—	
Intestinal . . . . .	412
Due to Ring Cancer of the Rectum, by E. M. Fisher . . . . .	47
Œsophageal . . . . .	587
Prostatic, Diagnosis of, by A. S. Roe . . . . .	612
Ochsner-Sherren Delayed Treatment of Neglected Appendicitis, The, by P. D. Braddon	660
Œsophagus, Perforation of the, and Mediastinitis, by E. W. Gutteridge . . . . .	232
O'Hagan, J. D. . . . .	271
O'Leary, Arthur Alphonsus, Death of . . . . .	246
O'Neill, G. L. . . . .	454
Ophthalmic Conditions . . . . .	587
Ophthalmological Aspects of Psychiatry . . . . .	391
By R. S. Ellery . . . . .	368
Opticians Act (New South Wales), 1930 . . . . .	422
O'Reilly, S. . . . .	647
Original Articles—	
Address, An—	
By G. Bell . . . . .	395
By R. G. McPhee . . . . .	33
Anæsthesia for Operations on the Base of the Brain, by G. Brown . . . . .	258
Apparent Diminution in Skeletal Muscle Tonus, On the, following Removal of the Lumbar Sympathetic Trunk, by G. Phillips . . . . .	628
"Avertin"—	
In Surgery and Obstetrics, by C. Coghlan . . . . .	737
Rectal Anæsthesia, A Further Report, by E. M. Balaam	746
Cancer and Tuberculosis, VI, The Relation of the White Blood Corpuscles to the Development of Malignant Disease, by T. Cherry . . . . .	275

Original Articles—Continued.	Page.	Original Articles—Continued.	Page.	Original Articles—Continued.	Page.
Child Hygiene, by C. Ellis ..	109	Mental Hygiene of Childhood, The, by M. V. Gutteridge ..	107	Some Notes on the Development of the Army Medical Services, by F. K. Norris ..	308
Chronic Respiratory Infections in Childhood, by G. Springthorpe ..	649	Modern Therapeutics, by G. C. Willcocks ..	314	Some Notes on Neuro-Surgery, by L. C. E. Lindon ..	365
Clinical Importance, The, of Certain Chemical Constituents of the Blood, by F. S. Hansman ..	560	Neuro-Surgical Aids in the Diagnosis of Hydrocephalus, by R. A. Money ..	526	Some Notes on the Value of X Rays in Pregnancy, by H. R. Sear ..	137
Clinical Types of Infantile Paralysis, by E. H. M. Stephen ..	75	Note on the Diagnosis of and Blood Cholesterol Changes in Major Convulsive Epilepsy, by K. Maddox ..	531	Some Recent Advances in the Treatment of Pulmonary Disease, by N. Davis ..	133
Diagnosis and Treatment of Some Common Obstetric Abnormalities, by J. C. Windeyer ..	551	Note on the Sensory Characters of the Nipple and Areola, by F. Wood Jones and J. B. Turner ..	778	Some Recent Developments in the Radiological Examination of the Gastro-Intestinal Tract, by J. O'Sullivan ..	685
Diagnosis of Pregnancy, by J. K. Couch ..	99	Observations on the Endometrium and Uterine Hemorrhage, by M. G. Sutton ..	34	Some Worm Infestations of Man in Australia, by G. M. Heydon and A. K. Green ..	619
Diagnosis of Whooping Cough, The, by L. Meagher ..	103	Ochsner-Sherren Delayed Treatment of Neglected Appendicitis, The, by P. D. Braddon ..	660	Study of Medicine, The, by C. G. Lambie ..	125
Diseases of the Gall Bladder, by St. J. W. Dansey ..	563	Ophthalmological Aspects of Psychiatry, by R. S. Ellery ..	368	Surgical Treatment of Prostatic Obstruction, by A. S. Roe ..	775
Early Diagnosis and Serum Treatment of Poliomyelitis, by K. T. Helms ..	71	Origin of Sluder's or Sphenopalatine Neuralgia, The, by L. B. Cox ..	435	Theoretical Aspects of Radiography, by W. Moppett ..	521
Estimation of Lactic Acid in Blood, The, by W. B. S. Bishop ..	219	Pathology of Metropathia Hemorrhagica, The: A Study of One Hundred and Twelve Cases of Irregular Uterine Hemorrhage, by J. V. Duhig ..	67	Toxicity of Melia Azedarach, "White Cedar," by H. R. Seddon ..	778
Examination of the Central Nervous System, by B. Hunt ..	461	"Percain": The New Local, Regional and Spinal Analgesic or Anæsthetic, by R. Graham Brown ..	598	Treatment of Deafness, The, by the Zünd-Burguet Electro-Phonoid Method: Summary of Forty Consecutive Cases, by R. G. Brown ..	375
Excretion of Intravenously Injected Sodium Thiosulphate, The, during Uncomplicated Human Pregnancy, by A. Bolliger and M. S. S. Earlam ..	427	Periarterial Sympathectomy: Its Use in Ulcers, Gangrene and Other Conditions, with a Discussion on the Ætiology of Trophic Changes, by A. E. Coates ..	339	Treatment of Difficult Labour in General Practice, The—By P. T. S. Cherry ..	12
Excretion of Lead in the Urine, The, after Injection of Colloidal Lead Orthophosphate, by R. K. Newman ..	373	Pityriasis Folliculorum (Demodex), by H. Lawrence and R. Brodie ..	529	By J. Riddell ..	8
Experiences with "Sodium Amytal" as a Basal Anæsthetic, by G. A. Hardwicke ..	750	Poisoned Spears of the Australian Aborigines, by J. MacPherson ..	780	Treatment of Fibroids of the Uterus, The, by H. H. Schlink and C. L. Chapman ..	691
Few Surgical Principles, A, by R. Worrall ..	256	Preparation of Human Immune Serum, The, for the Treatment of Poliomyelitis, by A. B. Lilley ..	251	Ureteral Stone, by R. K. Lee Brown ..	523
Fractures of the Maxillary Zygomatic Region and Their Treatment, by H. S. Stacy ..	779	Pruritus Vulvæ in Relationship to Intermittent Glycosuria, by M. Long and E. Downie ..	721	Valve-Rectified X Ray Machines, by J. G. Edwards ..	564
Gonin Operation, The, for the Cure of Idiopathic Retinal Detachment, by J. B. Hamilton ..	600	Psychiatry and Medicine, by W. S. Dawson ..	500	Vernes Test, The, as Applied in the Diagnosis and Treatment of Syphilis and Tuberculosis, by H. A. Woodruff ..	247
Halford Oration, The Foundation of a Medical School and the Progress of Medical Education, by R. Stawell ..	1	Public Health in Australia, by J. H. L. Cumpston—Part I, The First Forty-Two Years ..	491	Osborn, C. ..	584, 586
Head Injuries at Birth, by K. Christie ..	336	Part II, The Second Period, 1830 to 1850 ..	591	Osteitis Fibrosa, Experimental ..	636
Hodgkin's Disease, by L. Utz and L. Keatinge ..	397	Part III, Developments After 1850 ..	679	Osteology, An Introduction to Human, by R. Broom (rev.) ..	664
Hypertrophic Response, A, to Radium Irradiation: A Preliminary Communication, by D. L. Goulston ..	335	Punctate Basophilæ: A Method for Easy Demonstration by Dark Ground Illumination, by W. T. Nelson ..	310	Osteomyelitis ..	292, 456
Influence of Ætiological Factors, The, upon the Prognosis and Treatment of Mental Disorders, by R. G. Williams ..	771	Remarks on Penetrating Peptic Ulcer, by E. M. Fisher ..	503	By A. C. F. Halford ..	458
Laboratory Investigation, A, for the Detection of Typhoid Carriers, by R. Y. Mathew ..	286	Renal Tuberculosis, by F. W. D. Collier ..	254	O'Sullivan, J. ..	675
Latent Primary Tumours, by R. A. Willis ..	653	Selection of an Anæsthetic, The, by L. Doyle ..	194	Some Recent Developments in the Radiological Examination of the Gastro-Intestinal Tract ..	685
Local Anæsthesia in General Surgery, by C. E. Corlette ..	157	"Sodium Amytal" in Anæsthesia, by R. I. Furber ..	744	Oto-Laryngology, Diathermy, Medical and Surgical, in, by D. McKenzie ..	380
Medical Clinics in London and Vienna, by F. J. Niall ..	167	Some Aspects of Radiation Treatment, by B. L. W. Clarke ..	303	Otologic Surgery, by S. J. Kopetzky (rev.) ..	380
Medical Evidence, by His Honour Judge Perdriau ..	187			Oto-Rhino-Laryngology, International Congress of ..	549
Medical Men as Novelists, by W. J. L. Duncan ..	225			Owen, H. M.—Some Personal Experiences "Avertin" Anæsthesia ..	752
Medicine in Fiction in the Last Hundred Years, by S. F. McDonald ..	709			Oxenham, A. F. ..	545

## P

Paget's Disease, Psychosis and ..	453
Pain in the Back, Diagnosis of, by C. W. B. Littlejohn ..	670
Palmer, A. A. ..	547
The Union of Epiphyses ..	31
Unusual Poisoning by Arsenic ..	31
Paralysis—Clinical Types of Infantile, by E. H. M. Stephen ..	75



	Page.		Page.		Page.
Paralysis—Continued.		Poisoning—		Prolapse of the Breast .. .	143
Infantile [see Poliomyelitis]		By Arsenic—		Prostatic Obstruction, Diagnosis	
Ramisection in Spastic .. .	117	By J. K. D. Mackenzie .. .	317	of, by A. S. Roe .. .	612
Park, A. J. .. .	735	By A. Palmer .. .	31	Surgical Treatment of .. .	795
Parking of Cars .. .	733, 735	Diagnosis of Food, by D. M.		By A. S. Roe .. .	775
Parkinson, P. S. .. .	151	McWhae .. .	268	Protozoal Diseases, Immunity to	608
Parkinsonism, Post-Encephalitic..	454	Polak, J. O. .. .	605	Pruritus Vulvæ in Relationship	
Pathology, Microbiology and Ele-		Polayes, S. H. .. .	757	to Intermittent Glycosuria, by	
mentary, for the Use of		Police Offences Amendment		M. Long and E. Downie ..	721
Nurses, by C. G. Sinclair		(Drugs) Act, 1927 (New		Pseudocyst of Omental Bursa ..	30
(rev.) .. .	634	South Wales), by J. G. Hunter	360	Psychiatry—	
Paton, D. D. .. .	486	Poliomyelitis .. .	93, 329, 487, 675	And Medicine—	
Patton, W. S., and A. M. Evans		(Leading Article) .. .	665	By W. S. Dawson .. .	500
(Insects, Ticks, Mites and		And Polioencephalitis .. .	585	Ophthalmological Aspects of ..	391
Venomous Animals of Medical		Anterior, by W. K. Hughes ..	768	By R. S. Ellery .. .	368
and Veterinary Importance:		By J. Macnamara .. .	589	Psychological Approach to the	
Part I, (Medical) (rev.) ..	262	By N. D. Royle .. .	459	Problems of Life, A New (The	
Paul, N. .. .	29	Clinical Types of, by E. H. M.		Unknown Self), by G. Grod-	
Diagnosis of the Late Cutaneous		Stephen .. .	75	deck (rev.) .. .	536
Manifestations of Syphilis ..	90	Diagnosis of Acute, by J.		Psychology, Individual, by E.	
Pearse, I. H., and G. S. William-		Macnamara .. .	386	Wexberg (rev.) .. .	318
son (The Case for Action)		Early Diagnosis and Serum		Psychopathology: A Survey of	
(rev.) .. .	785	Treatment of, by K. T. Helms	71	Modern Approaches, by J. E.	
Pellagra, A Case of, by H. H.		Preparation of Human Immune		Nicole (rev.) .. .	605
Bullmore .. .	783	Serum for the Treatment of,		Psychosis—	
Pelvic Deformity .. .	645	The, by A. B. Lilley .. .	251	And Paget's Disease .. .	453
Pelvis, Abdomen and, Emergency		Polycythæmia Vera .. .	29	With Heart Disease .. .	452
Surgery, by H. Bailey (rev.)	633	Polyneuritis, Progressive .. .	237	Public Health—	
"Percain" .. .	246	Post-Graduate Work .. .	19, 397, 420	Authorities, Cancer and (Lead-	
The New Local, Regional and		Adelaide Permanent Committee	243	ing Article) .. .	291
Spinal Analgesic and Anæ-		By J. W. Barrett .. .	300	Canberra Cancer Conference ..	515
sthetic, by R. G. Brown .. .	598	Courses .. .	243, 302, 618	Case for Action, The, A Survey	
Perdriau, His Honour Judge—		Annual Post-Graduate Course		of Everyday Life under Mod-	
Medical Evidence .. .	187	in Brisbane .. .	456	ern Industrial Conditions,	
Pern, S.—		Annual Refresher Course—		with Special Reference to the	
Fractures and Rheumatism ..	549	in Adelaide .. .	548	Question of Health, by I. H.	
Pertussis .. .	103	in Melbourne .. .	457	Pearse and G. S. Williamson	
By I. Robertson .. .	244	Course of Instruction in		(rev.) .. .	785
Pestell, J. H. .. .	64	Anatomy and Physiology ..	302	Dangerous Drug Regulations in	
Phillips, A. W. .. .	789	Course of Lectures—		Victoria .. .	769
Phillips, G.—		in Brisbane .. .	677	Diploma in .. .	218
On the Apparent Diminution in		in Hobart .. .	618	Facilities for the Treatment of	
Skeletal Muscle Tonus Follow-		Diploma in Public Health ..	218	Tuberculous Patients in New	
ing Removal of the Lumbar		Lectures in Bacteriology and Im-		South Wales .. .	30
Sympathetic Trunk .. .	628	munology .. .	457	Health and the Public (Lead-	
Phlegmasia Alba Dolens, Bilateral,		Melbourne Permanent Com-		ing Article) .. .	635
and Spinal Deformity .. .	180	mittee for .. .	66, 181, 457	In Australia, by J. H. L.	
Physicians, Association of, of Aus-		Primary Fellowship Examina-		Cumpston—	
tralasia (Including New Zea-		tion of the Royal College of		Part I: The First Forty-two	
land) .. .	243	Surgeons of England ..	181, 301	Years .. .	491
(Leading Article) .. .	381	School of Public Health and		Part II: The Second Period,	
By T. J. Henry .. .	489	Tropical Medicine .. .	181	1830 to 1850 .. .	591
Pigdon, D. C. .. .	64	Teaching in England (Leading		Part III: Developments after	
Pilomotor Reaction, The .. .	28	Article) .. .	49	1850 .. .	679
Piper, J. E. .. .	63	Western Australia, Committee		Medical Services to Natives in	
Pituitary Disorder .. .	29	for .. .	733	Central Australia .. .	763
Pityriasis Folliculorum (Demo-		Potts, K. F. .. .	580	Notification of Births in Victoria	614
dex), by H. Lawrence and R.		Power, J. J. .. .	795	Poliomyelitis .. .	675
Brodie .. .	529	Poynton, F. J., and B. Schlesinger		Treatise on Hygiene and, by	
Platypus, Spiked by a, by W. K.		(Recent Advances in the		B. N. Ghosh (rev.) .. .	442
Hughes .. .	244, 458	Study of Rheumatism) (rev.)	694	Public Hospitals Act, 1929 .. .	422
Play, Rest, Work and (Leading		Practical Medicine Series [see		Public Medical Officers' Associa-	
Article) .. .	567	under Reviews]		tion of New South Wales ..	545
Player, Charles Richard, Death of	458, 768	Practice, Contract .. .	421	Annual Report .. .	546
Pneumonia—		Pregnancy—		Election of Office-bearers ..	546
Bronchoscopy in Post-Operative	321	Acute Amaurosis During, With-		Financial Statement .. .	546
Diagnosis of, by C. T. Ch. de		out Signs of Toxæmia, by		Policy of the Association ..	546
Crespigny .. .	416	B. H. Swift and A. L. Tostevin	632	Pulmonary Disease .. .	147
Diathermy in Chronic .. .	588	Diagnosis of, by J. K. Couch ..	99	Some Recent Advances in the	
Pneumothorax—		Excretion of Sodium Thiosul-		Treatment of, by N. Davis..	133
Artificial .. .	28	phate During Uncomplicated	427	Purdy, J. S. .. .	615
Hydro- .. .	797	Radiography and .. .	147	The War and Sir Neville	
Poate, H. R. G. .. .	154, 705, 706	Some Notes on the Value of X		Howse's Part Therein .. .	332
S. G. Icton and A. H. Tebbutt—		Rays in, by H. R. Sear .. .	137	Purpura—	
Gastric Intussusception in an		Prior, G. .. .	31	Anaphylactoid .. .	545
Adult Due to a Rare		Prizes, Medical [see Medical		Hæmorrhagica, by E. H. M.	
Tumour .. .	82	Prizes]		Stephen .. .	316
		Proctology, A Manual of, by T. C.		Purser, C. .. .	31
		Hill (rev.) .. .	16		

	Page.		Page.		Page.
Pyelo-Ureteritis, Tuberculous, of the Right Kidney, by M. G. Sutton . . . . .	111	Reports of Cases—Continued.		Reports of Cases—Continued.	
Pylorectomy . . . . .	299	Complete Obstructive Jaundice due to Obliteration of the Common Bile Duct in a Child, by R. L. T. Grant and L. O. Betts . . . . .	200	Secondary Neoplastic Destruction of the Thyroid Gland Resulting in Myxœdema, by R. A. Willis . . . . .	349
<b>Q</b>		Congenital Diaphragmatic Hernia in a Young Girl, by P. L. Hipsley . . . . .	200	Some Personal Experiences with "Avertin" Anæsthesia, by H. M. Owen . . . . .	752
Queensland Hospitals (Leading Article) . . . . .	85	Congenital Malformations of the Heart and Great Vessels: Report of Two Cases, by G. F. S. Davies . . . . .	138	Suggested Surgical Treatment of Bone in Rheumatoid Arthritis, by J. F. Mackenzie . . . . .	441
<b>R</b>		Coronary Thrombosis Associated with Venous Thrombosis, by A. Watkins . . . . .	201	Syphilis of the Stomach Stimulating Carcinoma, by G. Bell and A. H. Tebbutt . . . . .	81
Rabbit, Principles of Functional Anatomy of the, by E. D. Crabb (rev.) . . . . .	664	Death Under Anæsthesia: Lesions in the Medulla and Possible Status Thymico-Lymphaticus, by G. A. Hardwicke and O. Latham . . . . .	534	Tick in the Auditory Meatus, A, by B. Foster . . . . .	15
Radiation Treatment, Some Aspects of, by B. W. L. Clarke . . . . .	303, 327	Early Endometriotic Invasion of the Broad Ligament, by B. Dawson . . . . .	350	Traumatic Epilepsy, by A. Murphy . . . . .	317
Radiograph Exhibits . . . . .	762	Epithelioma of the Penis Treated by Radium, by W. Maxwell and H. M. Moran . . . . .	409	Treatment with Antivenine Twenty-Four Hours after a Bite by a Tiger Snake, by H. T. Tisdall and J. E. Sewell . . . . .	604
Radiography—		First Case Report of Indigenous Undulant Fever in New South Wales, by A. H. Tebbutt and H. T. Marsh . . . . .	170	Trichomonas Vaginalis, by H. G. Furnell . . . . .	604
And Pregnancy . . . . .	147	Fulminating Frontal Sinusitis and Orbital Cellulitis, by R. E. Buckingham . . . . .	201	Trichomonas Vaginitis, by H. O. Lethbridge . . . . .	232
Theoretical Aspects of, by W. Moppett . . . . .	521	Gastric Intussusception in an Adult due to a Rare Tumour, by S. G. Icton, H. R. G. Poate and A. H. Tebbutt . . . . .	82	Tuberculous Pyelo-Ureteritis of the Right Kidney, by M. G. Sutton . . . . .	111
Radiological Examination of the Gastro-Intestinal Tract, Some Recent Developments in the, by J. O'Sullivan . . . . .	685	Hermaphroditism, by C. H. Norton . . . . .	233	Tumour of the Semilunar (Gasserian) Ganglion: Neurocytoma, by G. G. Bradley and P. E. W. Smith . . . . .	80
Radium—		Intestinal Obstruction due to Ring Cancer of the Rectum, by E. M. Fisher . . . . .	47	Two Abdominal Tumours, by L. M. McKillop . . . . .	603
Epithelioma of the Penis Treated by, by W. Maxwell and H. M. Moran . . . . .	409	Intracranial Arterio-Venous Aneurysm, by R. C. Winn . . . . .	379	Two Cases of Erythrœdema, by A. W. Shugg . . . . .	722
Irradiation, A Hypertrophic Response to, by D. L. Goulston . . . . .	335	Intradural Resection of Posterior Primary Divisions for Intractable Sciatic Pain, by R. V. Graham . . . . .	112	Two Cases of Intussusception, by P. L. Hipsley . . . . .	378
Rainbow, J. M. . . . .	452, 453	Intussusception, by C. Uren . . . . .	289	Unusual Manifestations of Hydatid Disease, by A. E. Lee . . . . .	288
Ramification—		Juvenile Paretic Neurosyphilis, by G. L. Ewan . . . . .	112	Urinary Infection with Trichomonas Vaginalis in the Male, by D. B. Rosenthal . . . . .	782
In Spastic Paralysis . . . . .	117	Leprosy, by C. Duguid . . . . .	233	Resection, Intradural, of Posterior Primary Divisions for Intractable Sciatic Pain, by R. V. Graham . . . . .	112
Ischæmia and Pain in the Leg Treated by . . . . .	28	Lymphosarcoma of the Neck, by C. B. Blackburn . . . . .	565	Respiratory Infections, Chronic, in Childhood, by G. Springthorpe . . . . .	649, 674
The Value of . . . . .	637, 706	Perforation of the Œsophagus and Mediastinitis, by E. W. Gutteridge . . . . .	232	Rest, Work and Play (Leading Article) . . . . .	567
Rankin, F. W. . . . .	293	Poisoning by Arsenic, by J. K. D. Mackenzie . . . . .	317	Resuscitation by Cardiac Stimulation . . . . .	86
Ratcliff, S. W. G., and F. Tidswell—		Post-Vaccinal Encephalomyelitis, by L. Lockwood . . . . .	662	By D. Stewart . . . . .	259
Scarlet Fever Immunization . . . . .	647	Primary Intussusception of the Appendix, by T. Hamilton . . . . .	408	Retina, Pigmentary Degeneration of the, and Sympathectomy, by E. Temple Smith . . . . .	549
Rawling, L. B. (Stepping Stones to Surgery) (rev.) . . . . .	753	Purpura Hemorrhagica, by E. H. Stephen . . . . .	316	Retinal Detachment, The Gonin Operation for the Cure of Idiopathic, by J. B. Hamilton . . . . .	600
Rawlins, M. (A Textbook of Massage for Nurses and Beginners) (rev.) . . . . .	566	Pyogenic Verrucose Dermatitis, by G. R. Hamilton and E. B. Jones . . . . .	476	Retinitis Pigmentosa, The Pathology of, by J. C. Halliday . . . . .	677
Raynaud's Disease . . . . .	269	Resuscitation, by Cardiac Stimulation, by D. Stewart . . . . .	259	Retrospect (Leading Article) . . . . .	17
Rays, Therapeutic Uses of Infra-Red, by W. A. Troup (rev.) . . . . .	606	Rupture of the Intestine, by J. H. W. Wharton . . . . .	378	Reviews—	
Ray-Smith, Frank Walker, Death of . . . . .	215	Scurvy and Extreme Fatty Degeneration of the Liver, by E. H. M. Stephen and F. Tidswell . . . . .	534	After Consulting Hours, by C. Howard . . . . .	202
Read, Stanley James Docker, Death of . . . . .	589, 765			Annals of Roentgenology: A Series of Monographic Atlases, edited by J. T. Case; Volume XII: The Chest in Children, by E. G. Stolloff . . . . .	566
Reading, On (Leading Article) . . . . .	725			Anthography of the Eucalypts, An, by R. Grimwade . . . . .	535
Reading, R. F. . . . .	517			Basis of Epilepsy, The, by E. A. Tracey . . . . .	723
Records, Clinical (Leading Article) . . . . .	203			Cancer of the Larynx, by St. C. Thomson and L. Colledge . . . . .	410
Rectum, Lesion of the . . . . .	797				
Registration in United Kingdom of Australian Graduates . . . . .	488				
Reimer, Mr. . . . .	149				
Renal Tuberculosis, by F. W. D. Collier . . . . .	254, 269				
Repatriation Department . . . . .	487				
Reports of Cases—					
Acute Amaurosis during Pregnancy without Signs of Toxæmia, by B. H. Swift and A. L. Tostevin . . . . .	632				
Carcinoma of the Œsophagus with Multiple Metastases, by D. B. Rosenthal . . . . .	79				
Cardiac Rupture, by D. P. O'Brien . . . . .	380				
Carotenæmia (Biochemical Notes), by J. V. Duhig . . . . .	260				
Case of Pellagra, A, by H. H. Bullmore . . . . .	783				

	Page.		Page.		Page.
<i>Reviews—Continued.</i>		<i>Reviews—Continued.</i>		<i>Reviews—Continued.</i>	
Cancer of the Lung and Other Intrathoracic Tumours, by M. Davidson . . . . .	172	Manual of Surgery for Students and Graduates, by F. T. Stewart and W. E. Lee . . . . .	785	Testicular Grafting from Ape to Man, by S. Voronoff and G. A. Alexandrescu . . . . .	84
Case for Action, The, a Survey of Everyday Life under Modern Industrial Conditions, with Special Reference to the Question of Health, by I. H. Pearce and G. S. Williamson . . . . .	785	Mechanism of the Larynx, The, by V. E. Negus . . . . .	318	Textbook of Massage for Nurses and Beginners, A, by M. Rawlins . . . . .	566
Chronic Nasal Sinusitis and Its Relation to General Medicine, by P. Watson-Williams . . . . .	506	Microbiology and Elementary Pathology for the Use of Nurses, by C. G. Sinclair . . . . .	634	Text-book of the Surgical Dyspepsias, A, by A. J. Walton . . . . .	477
Churchill's Empire Series: Tropical Medicine, by Sir L. Rogers and J. W. D. Megaw . . . . .	754	Modern Treatment of Diseases of the Throat, Nose and Ear, by H. L. Whale . . . . .	352	Therapeutic Uses of Infra-Red Rays, by W. A. Troup . . . . .	606
Deafness and Its Alleviation by Operation, by V. Nesfield . . . . .	785	Neurological Examination, by C. A. McKendree . . . . .	380	Treatise on Hygiene and Public Health, A, with Special Reference to the Tropics, by B. N. Ghosh . . . . .	442
Diagnosis and Treatment of Heart Disease: Practical Points for Students and Practitioners, by E. M. Brockbank . . . . .	694	Œdema of Bright's Disease, The, by C. Achard . . . . .	663	Treatise on Materia Medica and Therapeutics, A, including Pharmacology, Dispensing, Pharmacology and Administration of Drugs, by B. N. Ghosh . . . . .	290
Diathermy, Medical and Surgical, in Oto-Laryngology, by D. McKenzie . . . . .	380	Origin of the Human Skeleton, The: An Introduction to Human Osteology, by R. Broom . . . . .	664	Treatment of Chronic Arthritis, The, by A. H. Douthwaite . . . . .	753
Die Funktion der Weiblichen Geschlechtsorgano und ihre Beziehungen zum Gesamtorganismus für Ärzte und Studierende, by A. V. Fekete . . . . .	140	Otologic Surgery, by S. J. Kopetzky . . . . .	380	Unknown Self, The, a New Psychological Approach to the Problems of Life, with Special Reference to Disease, by G. Groddeck . . . . .	536
Dietetics in Warm Climates, including Foodstuffs, their Analyses and Role in Disease, by J. N. Leitch, with Introduction by J. A. Byrne . . . . .	262	Physical Diagnosis, by R. C. Cabot . . . . .	634	Urinary Infection with Trichomonas in the Male, by D. B. Rosenthal . . . . .	782
Diet in Disease, by G. A. Harrop, Junior . . . . .	442	Physiological Principles of Hydrology, The, by R. G. Gordon and F. G. Thompson . . . . .	290	What We Drink, by various authors, edited by H. W. Bayly . . . . .	724
Diseases of the Skin: A Text-Book for Practitioners and Students, by G. C. Andrews . . . . .	754	Practical Medicine Series: Obstetrics, edited by J. B. De Lee; Gynecology, edited by J. O. Polak, Series 1929 . . . . .	605	X-Ray Technology, the Production, Measurement and Applications of X-Rays, by H. M. Terrill and C. T. Ulrey . . . . .	410
Emergency Surgery, by H. Bailey; Volume I, Abdomen and Pelvis . . . . .	633	Practical Medicine Series: The Eye, Ear, Nose and Throat, Series 1930 . . . . .	664	Reynolds, Thomas O'Loghlen, Death of . . . . .	156, 425
Epidemiological Essays, by F. G. Crookshank . . . . .	352	Practical Treatise on Diseases of the Digestive System, by L. Winfield Kohn, Volumes I and II . . . . .	634	Rheumatism—	
Essays and Addresses, Sociological, Biological and Psychological, by A Surgeon . . . . .	113	Principles and Practice of Dermatology, Volume III: The Treatment of Skin Disease in Detail, by N. Toomey . . . . .	536	Fractures and, by S. Pern . . . . .	549
Exercise, Its Functions, Varieties and Applications, by A. Abrahams . . . . .	261	Principles of Functional Anatomy of the Rabbit, by E. D. Crabb . . . . .	664	Recent Advances in the Study of, by F. J. Poynton and B. Schlesinger (rev.) . . . . .	694
Handbook of the Mosquitoes of North America, A, by R. Matheson . . . . .	289	Psychopathology: A Survey of Modern Approaches, by J. E. Nicole . . . . .	605	Riddell, J. . . . .	25, 26
Handbook of Therapeutics, by D. Campbell . . . . .	605	Recent Advances in the Study of Rheumatism, by F. J. Poynton and B. Schlesinger . . . . .	694	The Treatment of Difficult Labour in General Practice . . . . .	8
Hypertension and Nephritis, by A. M. Fishberg . . . . .	48	Sensation and the Sensory Pathway, by J. S. B. Stopford . . . . .	261	Ridler, H. A. . . . .	148
Individual Psychology, by E. Wexberg . . . . .	318	Short Practice of Gynecology, A, by H. Jellet and R. Tottenham . . . . .	723	Ridley, H. A. . . . .	380
Infant Nutrition: A Textbook of Infant Feeding for Students and Practitioners of Medicine, by W. McK. Marriott . . . . .	234	Shorter Convalescence, by J. K. McConnel . . . . .	352	Ritchie, H. J. . . . .	580
Insects, Ticks, Mites and Venomous Animals of Medical and Veterinary Importance, Part I, Medical, by W. S. Patton and A. M. Evans . . . . .	262	Social Control of Sex Expression, by G. May . . . . .	536	Robertson, I.—	
Intestinal Toxæmia (Auto-intoxication) Biologically Considered, by A. Bassler . . . . .	566	Some Aspects of the Cancer Problem, by W. Blair Bell . . . . .	786	Pertussis . . . . .	244
Introduction to Physical Anthropology, An, by E. P. Stibbe . . . . .	202	Soya Bean, The, and the New Soya Flour, by C. J. Ferrée . . . . .	202	Robertson, Norman Keith, Death of . . . . .	98
Introduction to the History of Medicine, An, by F. H. Garrison . . . . .	16	Speaking Personally, by W. Murdoch . . . . .	477	Robertson, W. N. . . . .	363, 486, 736
Manual of Proctology, A, by T. C. Hill . . . . .	16	Stepping Stones to Surgery (Anatomy Applied to Surgery), by L. B. Rawling . . . . .	753	Roe, A. S. . . . .	795, 796
		Surgical Diagnosis, by American authors, edited by E. A. Graham, Volumes I, II and III . . . . .	114	Diagnosis of Prostatic Obstruction . . . . .	612
		Synopsis of Medicine, A, by H. L. Tidy . . . . .	565	Surgical Treatment of Prostatic Obstruction . . . . .	775
		System of Clinical Medicine, A, Dealing with the Diagnosis, Prognosis and Treatment of Disease, for Students and Practitioners, by T. D. Savill . . . . .	233	Roentgenology—	
				Roentgenology, Annals of, Volume XII, The Chest in Children, by E. G. Stoloff (rev.) . . . . .	566
				Rogers, L., and J. W. D. Megaw (Tropical Medicine) (rev.) . . . . .	754
				Rogers, Mr. Justice Halse . . . . .	149
				Rolleston, H. . . . .	204
				Rosenberg, L. C. . . . .	568
				Rosenthal, D. B.—	
				Carcinoma of the Œsophagus with Multiple Metastases . . . . .	79
				Urinary Infection with Trichomonas Vaginalis in the Male . . . . .	782
				Rosenthal, S. R. . . . .	117
				Ross, C. . . . .	31, 186, 333
				Royal Army Medical Corps, The . . . . .	735



	Page.		Page.		Page.
Royal Australasian College of Surgeons, The . . . . .	733	School of Public Health and Tropical Medicine—		Skirving, R. S.— <i>Continued.</i>	
(Leading Article) . . . . .	695	Diploma in Tropical Medicine . .	181	Wire Splicing for Yachtsmen (note) . . . . .	754
Annual Meeting . . . . .	704	School, The Foundation of a Medical, and the Progress of Medical Education (Halford Oration), by R. Stawell . . . . .	1	Sluder's or Spheno-Palatine Neuralgia, The Origin of, by L. B. Cox . . . . .	435
Change of Name of the College . .	706	Schönlein's Disease . . . . .	270	Smeaton, B. . . . .	486
Education of a Surgeon . . . . .	704	Sciatic Pain, Intradural Resection of Posterior Primary Divisions for Intractable, by R. V. Graham . . . . .	112	Smelson, M. . . . .	154
Election of Members of Council . .	705	Sclerosis, Disseminated . . . . .	27	Smith, E. Temple—	
Fellows—		Scott, Alfred Frederick Steele, Death of . . . . .	736	Pigmentary Degeneration of the Retina and Sympathectomy . .	549
Admission of . . . . .	704	Scrivener, H. R. . . . .	514	Smith, K. . . . .	546, 548
Newly Elected . . . . .	705	Scurvy and Extreme Fatty Degeneration of the Liver, by E. H. M. Stephen and F. Tidswell . . . . .	534	Smith, P. E. W., and G. G. Bradley—	
President's Address . . . . .	704	Sear, H. R. . . . .	147, 149, 360	Tumour of the Semilunar (Gasserian) Ganglion: Neurocytoma . . . . .	80
Report of the Council . . . . .	705	Some Notes on the Value of X Rays in Pregnancy . . . . .	137	Smith, S. A. . . . .	582
Coat of Arms . . . . .	706	Searby, H. . . . .	123	The Diagnosis of Heart Disease . .	640
College Building, A . . . . .	706	Searls, H. H. . . . .	412	Snake, Treatment with Antivenine Twenty-four Hours after a Bite by a Tiger, by H. T. Tisdall and J. E. Sewell . .	604
Fellows—		Secrecy, Professional (Leading Article) . . . . .	353	Soden, John Leslie Ross, Death of "Sodium Amytal,"—	214
Future Admission of . . . . .	705	Seddon, H. R.—		Experiences with, as a Basal Anæsthetic, by G. A. Hardwicke . . . . .	750
Number of . . . . .	705	Toxicity of Melia Azedarach, "White Cedar" . . . . .	778	In Anæsthesia, by R. I. Furber . .	744
Higher Degrees in Surgery . . . .	705	Senior, F. A. . . . .	444	Sodium Thiosulphate, The Excretion of Intravenously Injected, during Uncomplicated Human Pregnancy, by A. Bolliger and M. S. S. Earlam . . . . .	427
Hydatid Registry . . . . .	706	Sensation and the Sensory Pathway, by J. S. B. Stopford (rev.) . . . . .	261	Southby, R. . . . .	587
Incorporation of the College . . . .	705	Sensory Characters of the Nipple and Areola, by F. Wood Jones and J. B. Turner . . . . .	778	Southwood, A. R. . . . .	26
Journal of the College of Surgeons of Australasia . . . . .	706	Sepsis—		Superannuation Scheme for Doctors . . . . .	617
Primary Fellowship Examination . .	705	Following Abortion . . . . .	180	Soya Bean, The, and the New Soya Flour, by C. J. Ferrée (rev.) . . . . .	202
Ramification, The Results of Royal College of Surgeons of England, Relations with the . . . . .	706	Puerperal . . . . .	180	Spasmophilia . . . . .	587
Royal College of Surgeons of England . . . . .	706	Seventh Heaven, by N. Murdoch (note) . . . . .	606	Speaking Personally, by W. Murdoch (rev.) . . . . .	477
Primary Fellowship Examination . .	181, 301, 705	Sewell, J. E., and H. T. Tisdall—		Spears, Poisoned, of the Australian Aborigines, by J. MacPherson . .	780
Royal Prince Alfred Hospital, The Treatment of Syphilis . . . . .	488	Treatment with Antivenine Twenty-four Hours after a Bite by a Tiger Snake . . . . .	604	Special Articles on Diagnosis [see Diagnosis]	
Royle, N. D. . . . .	117, 452, 454	Sewell, S. V. . . . .	426	Spector, H. I. . . . .	50
Poliomyelitis . . . . .	459	Sex Expression, Social Control of, by G. May (rev.) . . . . .	536	Spondylolisthesis . . . . .	762
Rudy, A. . . . .	696	Shand, J. W. . . . .	359	Spring, J. F. . . . .	391
Rule, A. M. . . . .	726	Sheldon, S. . . . .	154, 580	Springthorpe, G.—	
Rupture—		Shibley . . . . .	321	Chronic Respiratory Infections in Childhood . . . . .	649, 674, 675
Cardiac . . . . .	174	Shugg, A. W. . . . .	486, 675	Springthorpe, J. W.—	
By D. P. O'Brien . . . . .	380	Two Cases of Erythredema . . . .	722	The War and Sir Neville Howse's Part Therein . . . . .	155, 393
Of the Intestine, by J. H. W. Wharton . . . . .	378	Silicosis . . . . .	354	Sprott, G. . . . .	486, 769
Russell, E. . . . .	298	Simpson, G. . . . .	763	Sproule, William, Death of . . . .	708
Diagnosis of the Leuchæmias . . . .	512	Sinclair, C. G. (Microbiology and Elementary Pathology for the Use of Nurses) (rev.) . . . .	634	Sprue and Amœbic Dysentery—	
Russell, R. H. . . . .	271, 767	Sinusitis—		By W. L. Calov . . . . .	184
Russell, W. R. . . . .	237	Chronic Nasal, and its Relation to General Medicine, by P. Watson-Williams (rev.) . . . .	506	By H. Crawford . . . . .	301
Rutherford, R. . . . .	609	Fulminating Frontal, and Orbital Cellulitis, by R. E. Buckingham . . . . .	201	Stacy, H. S. . . . .	28, 154
Ryan, J. R.—		Sivell, E. E. . . . .	577	Fractures of the Maxillary Zygomatic Region . . . . .	779
Workers' Compensation Insurance Practice in New South Wales . . . . .	424	Skeleton, The Origin of the Human, by R. Broom (rev.) . .	664	Stawell, R. . . . .	243, 768
		Skigrams . . . . .	455	Halford Oration . . . . .	1
		Skin—		Stayner, F. E. . . . .	360
		Diagnosis of Tuberculous Diseases of the, by H. Lawrence . .	542	Steele, D. M. . . . .	26
		Diseases of the, by G. C. Andrews (rev.) . . . . .	754	Stenosis, Congenital, of the Duodenum . . . . .	175
		Skirving, R. S. . . . .	31, 582	Stephen, E. H. M. . . . .	93, 94
		Diagnosis of Diathesis: Gout, Tuberculosis, Cancer . . . . .	22	And F. Tidswell—	
				Scurvy and Extreme Fatty Degeneration of the Liver . .	534
				Clinical Types of Infantile Paralysis . . . . .	75
				Purpura Hemorrhagica . . . . .	316

	Page.		Page.		Page.
Stephens, H. D. . . . .	583, 584, 675	Syphilis—		Tidswell, F.—	
Stewart, A. D. . . . .	442	And Tuberculosis, The Vernes		And E. H. M. Stephen—	
Stewart, C. P. . . . .	412	Test as Applied in the Diag-		Scurvy and Extreme Fatty	
Death of . . . . .	708	nosis and Treatment of—		Degeneration of the Liver	534
Stewart, D.—		By A. E. Finckh . . . . .	458	And S. W. G. Ratcliff—	
Resuscitation by Cardiac Stimu-		By H. A. Woodruff . . . . .	247, 589	Scarlet Fever Immunization	647
lation . . . . .	259	Celiac Disease and Congenital		Tidy, H. L. (A Synopsis of Medi-	
Stewart, F. T., and W. E. Lee (A		Congenital . . . . .	455, 585	cine) (rev.) . . . . .	565
Manual for Surgery (rev.) . . . . .	785	Diagnosis of the Late Cutane-		Tisdall, H. T., and J. E. Sewell,	
Stewart, K. B. F. . . . .	123	ous Manifestations of, by		Treatment with Antivenine	
Stibbe, E. P. (An Introduction to		C. N. Paul . . . . .	90	Twenty-Four Hours after a	
Physical Anthropology) (rev.) . . . . .	202	Gastric . . . . .	697	Bite by a Tiger Snake . . . . .	604
Stiffe, R. J. . . . .	789	Neuro-, and Cardio-Vascular . . . . .	538	Tinter, J. . . . .	359
Still-Birth and Neonatal Mortal-		Of the Stomach Simulating		Todd, R. H. . . . .	486, 513, 514, 515
ity (Leading Article) . . . . .	235	Carcinoma, by G. Bell and		Tonsillectomy—	
Stobo, A. J. H. . . . .	148	A. H. Tebbutt . . . . .	81	(Leading Article) . . . . .	173
Stocktaking (Leading Article) . . . . .	787	Transmission of, by Blood		By R. G. Brown . . . . .	361
Stoddart, W. H. B. . . . .	605	Transfusion . . . . .	757	By F. W. Fay . . . . .	300
Stokes, E. H. . . . .	27	Treatment of (Royal Prince		By B. Foster . . . . .	272
Stokes, E. S. . . . .	546	Alfred Hospital) . . . . .	488	By W. K. Hughes . . . . .	489
A Workers' Compensation Case		Use of Bismuth in the Treat-		By H. G. Mitchell . . . . .	489
Stokes, H. L. . . . .	585, 675	ment of . . . . .	726	By A. L. Watson . . . . .	273
Stoloff, E. G. (Annals of Roent-				Tonsils, Electro-Surgery of the, by	
genology, Volume XII, The				W. K. Hughes . . . . .	185
Chest in Children) (rev.) . . . . .	566			Tonus, On the Apparent Diminu-	
Stone, Ureteral, by R. K. Lee				tion in Skeletal Muscle, fol-	
Brown . . . . .	523			lowing Removal of the Lumbar	
Stopford, J. S. B. (Sensation and				Sympathetic Trunk, by G.	
the Sensory Pathway) (rev.) . . . . .	261			Phillips . . . . .	628
Storey, J. . . . .	514			Toomey, N. (Principles and Prac-	
Subscriptions, Branch, by A.				tice of Dermatology, Volume	
Morris . . . . .	735			III) (rev.) . . . . .	536
Superannuation Scheme for				Tostevin, A. L., and B. H. Swift,	
Doctors—				Acute Amaurosis during Preg-	
By A. R. Southwood . . . . .	617			nancy without Signs of	
By K. J. B. Davis . . . . .	245			Toxæmia . . . . .	632
Surgeon, A (Essays and Addresses)				Tottenham, R., and H. Jellett (A	
(rev.) . . . . .	113			Short Practice of Gynæcology)	
Surgery—				(rev.) . . . . .	723
Aims and Limitations of . . . . .	666			Toxæmia—	
Emergency, by H. Bailey (rev.) . . . . .	633			Acute . . . . .	179
Higher Degrees in . . . . .	705			Intestinal (Autointoxication)	
Manual of, for Students and				Biologically Considered, by A.	
Graduates, by F. T. Stewart				Bassler (rev.) . . . . .	566
and W. E. Lee (rev.) . . . . .	785			Tracey, E. A. (The Basis of	
Otologic, by S. J. Kopetzky				Epilepsy) (rev.) . . . . .	723
(rev.) . . . . .	380			Trachoma, by J. W. Barrett . . . . .	97, 458
Stepping Stones to (Anatomy				Travers, Geoffrey Frederick, Death	
Applied to Surgery), by L. B.				of . . . . .	215, 393
Rawling (rev.) . . . . .	753			Tremor of the Arms . . . . .	454
The Australian and New Zealand				Trichiniasis . . . . .	667
Journal of (note) . . . . .	754			Trichomonas Vaginalis—	
Surgical Dyspepsias, A Textbook				By H. G. Furnell . . . . .	604
of the, by A. J. Walton (rev.) . . . . .	477			In the Male, Urinary Infection	
Surgical Principles, A Few, by R.				with, by D. B. Rosenthal . . . . .	782
Worrall . . . . .	256			Trichomonas Vaginitis . . . . .	788
Sutherland, B. M. . . . .	575			By H. O. Lethbridge . . . . .	232
Sutton, M. G. . . . .	91, 92, 795			By B. H. Swift . . . . .	519
Observations on the Endo-				By E. A. Woodward . . . . .	361
metrium and Uterine Hæmor-				Tropical Medicine (Churchill's	
rhage . . . . .	34			Empire Series), by Sir L.	
Tuberculous, Pyelo-Ureteritis of				Rogers and J. W. D. Megaw	
the Right Kidney . . . . .	111			(rev.) . . . . .	754
Swift, B. H.—				Tropics, A Treatise on Hygiene	
And A. L. Tostevin—				and Public Health, with	
Acute Amaurosis during Preg-				Special Reference to the, by B.	
nancy without Signs of				N. Ghosh (rev.) . . . . .	442
Toxæmia . . . . .	632			Troup, W. A. (Therapeutic Uses	
Trichomonas Vaginalis . . . . .	519			of Infra-Red Rays) (rev.) . . . . .	606
Sydney Hospital . . . . .	27			Tuberculosis . . . . .	133, 645
Syme, George Adlington . . . . .	61			Cancer and, by T. Cherry . . . . .	275
Sympathectomy—				Diathesis, Diagnosis of . . . . .	22
Periarterial: Its Use in Ulcers,				Of the Spine, Diagnosis of, by	
Gangrene and Other Condi-				R. M. Downes . . . . .	120
tions, by A. E. Coates . . . . .	339			Pulmonary, in Children—	
Pigmentary Degeneration of the				By W. Evans . . . . .	97
Retina and, by E. Temple				By R. L. T. Grant . . . . .	245
Smith . . . . .	549			Renal, by F. W. D. Collier . . . . .	254, 269

	Page.		Page.		Page.
Tuberculosis—Continued.		Uterus, The Use of Chloride of		Willis, R. A.—	
The Vernes Test as Applied in		Zinc in the .. .. .	544	Latent Primary Tumours ..	653
the Diagnosis and Treatment		Utz, L., and L. Keatinge, Hodgkin's	397	Secondary Neoplastic Destruction	
of Syphilis and, by H. A.		Disease .. .. .		of the Thyroid Gland	
Woodruff .. .. .	247			Resulting in Myxedema ..	349
Thoracoplasty in Pulmonary ..	445	V		Wilson, C. E. C. .. .. .	25, 329, 761
Tuberculous Diseases of the Skin,				Wilson, K. .. .. .	92
Diagnosis of, by H. Lawrence	542	Vaccination, Surgery of the Colon	293	Wilson, T. G. .. .. .	25
Tuberculous Patients, Treatment		and .. .. .		Windeyer, J. C.—	
of, in New South Wales ..	30	Vallack, R. .. .. .	359, 360	The Diagnosis and Treatment	
Tucker, C. .. .. .	456	Varicose Veins, Recurrence of ..	509	of Some Common Obstetric	
Tumour—		Venin, A., for the Treatment of		Abnormalities .. .. .	551, 575, 576
Gastric Intussusception in an		Epilepsy, by F. A. Wood ..	245	Winn, R. C. .. .. .	28
Adult due to a Rare, by S. G.		Vernes Test, The, as Applied in		Intracranial Arterio-Venous	
Ice-ton, H. R. G. Poate and		the Diagnosis and Treatment		Aneurysm .. .. .	379
A. H. Tebbutt .. .. .	82	of Syphilis and Tuberculosis—		Wire Splicing for Yachtsmen, by	
Mediastinal .. .. .	29	By A. E. Finckh .. .. .	458	R. Scot Skirving (note) ..	754
Of Rectum .. .. .	299	By H. A. Woodruff .. .. .	247, 589	Women's Hospital, Crown Street,	
Of the Lung .. .. .	271	Vickers, W. .. .. .	93	Sydney .. .. .	179
Of the Semilunar (Gasserian)		"Vi-Lactogen" .. .. .	172	Wood, F. A. .. .. .	392
Ganglion: Neurocytoma, by G.		"VitaB" .. .. .	478	A Venin for the Treatment of	
G. Bradley and P. E. W.		Vitamin D, The Toxicity of ..	142	Epilepsy .. .. .	245
Smith .. .. .	80	von Lichtenberg, A. .. .. .	382	Wood Jones, F. .. .. .	181, 456
Tumours—		Voronoff, S., and G. Alexandrescu		And J. B. Turner—	
Cancer of the Lung and Other		(Testicular Grafting from Ape		Sensory Characters of the	
Intrathoracic, by M. David-		to Man) (rev.) .. .. .	84	Nipple and Areola .. .. .	772
son (rev.) .. .. .	172	W		Woodruff, H. A.—	
Latent Primary, by R. A. Willis	653			The Vernes Test as Applied in	
Two Abdominal, by L. M.		Waldemar Haffkine, C.I.E., by R.		the Diagnosis and Treatment	
McKillop .. .. .	603	W. Hornabrook .. .. .	183	of Syphilis and Tuberculosis	247, 589
Turner, A. W. .. .. .	116	Walker, A. S.—		Woodward, E. A.—	
Turner, J. B. .. .. .	123	Diagnosis of the Causes of		Trichomona Vaginalis .. ..	361
And F. Wood Jones—		Obesity .. .. .	178	Woolnough, S. J., A Warning ..	459
Sensory Characters of the		Wallace, J. A. L. .. .. .	454, 545, 546, 547	Work and Play, Rest (Leading	
Nipple and Areola .. .. .	778	Walton, A. J. (A Text-book of the		Article) .. .. .	567
Typhoid—		Surgical Dyspepsias) (rev.)	477	Workers' Compensation Act—	
Carriers, A Laboratory Investi-		Wanger, J. J. .. .. .	539	1926-1929 (New South Wales)	421
gation for the Detection of,		Warning, A., by S. J. Woolnough	459	1928 (Victoria) .. .. .	122
by R. Y. Mathew .. .. .	286	Waters, H. S. .. .. .	242	By R. D. Davey .. .. .	299
Fever, Diagnosis, by A. Murphy	296	Watkins, A.—		Case, by E. S. Stokes .. ..	459
U		Coronary Thrombosis Associated		Insurance Practice, New South	
Ulcer—		with Venous Thrombosis ..	201	Wales .. .. .	211
Gastric and Duodenal, and		Watkins, A. B. K. .. .. .	270	By H. L. Kesteven .. .. .	519
Glycosuria .. .. .	696	The Fees of Specialists ..	184	By J. R. Ryan .. .. .	424
Remarks on Penetrating Peptic,		Watson, A. L., Tonsillectomy ..	273	In Western Australia .. ..	732
by E. M. Fisher .. .. .	503	Watson-Williams, P. (Chronic		(Leading Article) .. .. .	319
Ulcers, Use of Periarterial Sym-		Nasal Sinusitis and Its Rela-		Worm Infestations of Man in Aus-	
pathectomy in .. .. .	339	tion to General Medicine)		tralia, Some, by G. M. Heydon	
Ulrey, C. T., and H. M. Terrill		(rev.) .. .. .	506	and A. K. Green .. .. .	619
(X-Ray Technology) (rev.) ..	410	Weigall, G. .. .. .	66	Worrall, R.—	
Undulant Fever in New South		Wenrich, D. H. .. .. .	788	A Few Surgical Principles ..	256
Wales, The First Case Report		Wentworth, E. F. .. .. .	151	Diagnosis of Infections of the	
of Indigenous, by A. H.		Wexberg, E. (Individual Psych-		Fallopian Tubes .. .. .	146
Tebbutt and H. T. Marsh ..	170	ology) (rev.) .. .. .	318	Worster-Drought, C. .. .. .	538
University Intelligence—		Whale, H. L. (Modern Treatment		Wright, H. D. .. .. .	19
Melbourne .. .. .	123, 549	of Diseases of the Throat,			
Diploma Courses, Proposed ..	62	Nose and Ear) (rev.) .. ..	352	X	
Diplomas, New .. .. .	123	Wharton, J. H. W.—		Xanthoma Tuberosum Multiplex	27
Primary Examination for the		Rupture of the Intestine ..	378	X Ray—	
Fellowship of the Royal		White, E. R. .. .. .	66	Machines, Valve-Rectified, by J.	
College of Surgeons of		White, N. .. .. .	64	G. Edwards .. .. .	564
England .. .. .	123	White Cedar, Melia Azedarach,		Technology, by H. M. Terrill	
Regulations for the Degree		Toxicity of, by H. R. Seddon	778	and C. T. Ulrey (rev.) ..	410
of Doctor of Medicine, Revi-		Whooping Cough, The Diagnosis		X Rays, Some Notes on the Value	
sion of .. .. .	123	of, by L. Meagher .. .. .	103	of, in Pregnancy, by H. R.	
Sydney .. .. .	548, 615, 736	Willcocks, G. C. .. .. .	29, 93	Sear .. .. .	137
Appointments .. .. .	363	Modern Therapeutics .. ..	314	Y	
Medical Curriculum (Leading		Willcox, W. .. .. .	606		
Article) .. .. .	755	Williams, J. F. .. .. .	585	Yuille, M. .. .. .	392
Universities, The .. .. .	18	Williams, R. G. .. .. .	733	Z	
Upton, W. C. T. .. .. .	613	The Influence of Etiological		Zinc, The Use of Chloride of, in	
Uren, C.—		Factors upon the Prognosis		the Uterus .. .. .	544
Intussusception .. .. .	289	and Treatment of Mental		Zünd-Burguet Electro-Phonide	
Ureteral Stone, by R. K. Lee		Disorders .. .. .	771	Method, The Treatment of	
Brown .. .. .	523	Williamson, G. S., and I. H. Pearse		Deafness by the, by R. G.	
"Uroselectan" .. .. .	382, 586	(The Case for Action) (rev.)	785	Brown .. .. .	375
Urinary Infection with Tricho-		Williamson, J. E. .. .. .	508	Zwar, B. T. .. .. .	66, 297
monas Vaginalis in the Male,		Willis, H. H. .. .. .	547		
by D. B. Rosenthal .. .. .	782				



## INDEX TO ILLUSTRATIONS.

	Page.		Page.		Page.
Bage, Charles .....	182	Intussusception, Gastric, in an Adult due to a Rare Tumour (S. G. Icton, H. R. G. Poate and A. H. Tebbutt) ..	82	Retinal Detachment, The Gonin Operation for the Cure of Idiopathic (J. B. Hamilton) ..	600
Cancer and Tuberculosis, VI, The Relation of the White Blood Corpuscles to the Development of Malignant Disease (T. Cherry) ..	275	Intussusception, Primary, of the Appendix (T. Hamilton) ..	408	Royal Australasian College of Surgeons, Coat of Arms of ..	706
Dermatitis, Pyogenic Verrucose (G. R. Hamilton and E. B. Jones) ..	476	Lactic Acid in Blood, Estimation of (W. B. S. Bishop) ..	219	Sodium Thiosulphate, The Excretion of Intravenously Injected, During Uncomplicated Human Pregnancy (A. Bolliger and M. S. S. Earlam) ..	427
Endometrium, Observations on, and Uterine Hæmorrhage (M. G. Sutton) ..	34	Nervous System, Central, Examination of the (B. Hunt) ..	461	Sydney Hospital from the Air-Liner <i>Canberra</i> ..	257
Epithelioma of the Penis Treated by Radium (W. Maxwell and H. M. Moran) ..	409	Neuralgia, The Origin of Sluder's or Spheno-Palatine (L. B. Cox) ..	435	Sympathectomy, Periarterial, Its Use in Ulcers, Gangrene and Other Conditions, with a Discussion on the Ætiology of Trophic Changes (A. E. Coates) ..	339
Gastro-Intestinal Tract, Some Recent Developments in the Radiological Examination of the (J. O'Sullivan) ..	685	Obstetric Abnormalities, The Diagnosis and Treatment of Some Common (J. C. Windeyer) ..	551	Thomas, David ..	517
Grant, David ..	767	Pellagra, A Case of (H. H. Bullmore) ..	783	Tonus, On the Apparent Diminution in Skeletal Muscle, following Removal of the Lumbar Sympathetic Trunk (G. Phillips) ..	628
Head Injuries at Birth (K. Christie) ..	336	"Percaïn," The New Local, Regional and Spinal Analgesic or Anæsthetic (R. G. Brown) ..	598	Worm Infestations, Some, of Man in Australia (G. M. Heydon and A. K. Green) ..	619
Heart and Great Vessels, Congenital Malformations of (G. F. S. Davies) ..	138	Poliomyelitis, The Preparation of Human Immune Serum for the Treatment of (A. B. Lilley) ..	251		
Hydrocephalus, Neuro-Surgical Aids in the Diagnosis of (R. A. Money) ..	526	Public Health in Australia (J. H. L. Cumpston) ..	491, 591, 679		
		Radiography, Theoretical Aspects of (W. Moppett) ..	521		

## SPECIAL PLATES.

	Page.		Page.		Page.
Cancer and Tuberculosis: VI—The Relation of the White Blood Corpuscles to the Development of Malignant Disease (T. Cherry) ..	facing 278	Intussusception, Gastric, in an Adult Due to a Rare Tumour (S. G. Icton, H. R. G. Poate and A. H. Tebbutt) ..	facing 81	Scurvy and Extreme Fatty Degeneration of the Liver (E. H. M. Stephen and F. Tidswell) ..	facing 529
Carcinoma of the Œsophagus with Multiple Metastases (D. B. Rosenthal) ..	facing 80	Metropathia Hæmorrhagica, The Pathology of, A Study of One Hundred and Twelve Cases of Irregular Uterine Hæmorrhage (J. V. Duhig) ..	facing 70	Sympathectomy, Periarterial: Its Use in Ulcers, Gangrene and Other Conditions (A. E. Coates) ..	facing 338
Endometriotic Invasion, Early, of the Broad Ligament (J. B. Dawson) ..	facing 339	Pityriasis Folliculorum (Demos) (H. Lawrence and R. Brodie) ..	facing 529	Syphilis of the Stomach Simulating Carcinoma (G. Bell and A. H. Tebbutt) ..	facing 81
Gastro-Intestinal Tract, Some Recent Developments in the Radiological Examination of the (J. O'Sullivan) ..	facing 690	Radiography, Theoretical Aspects of (W. Moppett) ..	facing 522	Thyroid Gland, Secondary Neoplastic Destruction of the, Resulting in Myxedema (R. A. Willis) ..	facing 339
Head Injuries at Birth (K. Christie) ..	facing 338	Radium Irradiation, A Hypertrophic Response to (D. Goulston) ..	facing 336	Tumour of the Semilunar (Gasarian) Ganglion: Neurocytoma (G. G. Bradley and P. E. W. Smith) ..	facing 80
Hydrocephalus, Neuro-Surgical Aids in the Diagnosis of (R. A. Money) ..	facing 528			Ureteral Stone (R. K. Lee Brown) ..	facing 523

